

DS #: 5381

APN: 137-14-410-011 and 137-14-410-012

PROJECT: Summerlin Village 22 - Parcels C and D

SUBMITTAL: 1st

SCANNED BY/DATE:

CHECKED BY/DATE:





October 26, 2020

City of Las Vegas
Flood Control
333 N Rancho Dr.
Las Vegas, NV 89106

RE: Certification Letter for Paper and Digital Plans for the
Technical Drainage Study for Summerlin Village 22 Parcels C and D

Mr. Sung,

This letter has been provided as certification that the paper version of the plans match the digital PDF plans on the CD submitted with the drainage study.

Sincerely,

RCI Engineering

A handwritten signature in blue ink that reads "Rick J. Read".

Rick J. Read, P.E.

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

November 30, 2020

TO:

Land Development Services
Department of Building & Safety

FROM:

Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT:

Drainage Study for:

COPIES TO:

Summerlin Village 22 - Parcels C and D

RCI Engineering

Cross Streets:

NWC Desert Foothills Dr & Kestrel Creek Ave.

Woodside Homes Nevada LLC

File Number:

F:\Depot\DSMemos\DS5381A.doc

Bart Anderson, P.E., DevCo

Parcel Number:

137-14-410-011 and 137-14-410-012

Zoning Action:

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

X

NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	10/30/2020	11/11/2020 & 11/30/2020	See Comments Below	\$400.00	4050406: \$400
			TOTAL FEES (LDDRS):	\$400.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
X	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. Provide a copy of the zoning/planning conditions associated with this site with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. The subject development is under the premise of flood protection by the improved perimeter streets, *Kettle Ridge Drive*, *Kestrel Creek Avenue* and *Desert Foothill Drive* and the associated facilities. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter facilities.
3. Show the *Flow Depth* and *Velocity* values from *Appendix C* for the adjacent streets *Kettle Ridge Drive*, *Kestrel Creek Avenue*, and *Desert Foothills Drive* on Figures 5 and 6.
4. The inverts for the storm drain mainline to *Desert Foothills Drive* model do not match the inverts shown on the plans.
5. **Sheet P-7:** The HGL for the lateral for DI#5 model does not match the HGL shown on the plans.
6. Provide calculations for the interim condition swales and all proposed riprap.

7. Revise all callout of proposed drop inlets to include only the length of the inlets without adding the number of grates. There were projects constructed in which the contractors followed only the number of grates without double checking the total length whether matching the length callout. Shorter inlets were constructed as a result. Review and revise accordingly.
8. On all pertinent grading plans, it is not clear whether all the proposed inlets are shown to be within a roll-curb or L-curb. Revise the grading plans to show transition of roll-curb to L-curb clearly for all drop inlets.
9. **Unit 1: Sheet G-4:** Provide the top of grate elevation (TG) of the existing 4'x12' Type 2 drop inlet.
10. **Unit 1: Sheet G-4:** Provide a cross section to show the grading at the 4' x 12' inlet to support that the weir calculation provided adequately reflect the flow capture.
11. Address in a worst case scenario that if the Type 2 inlet is totally clogged, is there an emergency overflow path available and the adjacent houses will not be inundated. Also, what is the maximum ponding depth at the inlet if it is totally clogged?
12. **Unit 1: Sheet G-6:** The west side of the *Glide Drive to Kestrel Creek Avenue* does not provide adequate freeboard to the 100-year flow depth in *Kestrel Creek Avenue*. Note that the hump must provide a minimum of six inches (6") of freeboard. Review and resolve in the next submittal.
13. **Unit 1:** Construction Note #27: Clearly specify the wrought iron fence/gates to be installed per *Uniform Standard Drawing 425.S1*.
14. **Unit 2: Sheet D-2:** Section 23 does not show the hatching for the 3 course solid grouted wall.
15. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
16. Private streets must be public drainage easements. Provide a note on the grading plans "Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA".
17. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
18. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS
HDR/AYS

T/R/S: T20S/R59E/14
AREA K-14

TECHNICAL DRAINAGE STUDY FOR SUMMERLIN VILLAGE 22 PARCELS C AND D

Prepared for:

**Woodside Homes of Nevada
4670 South Fort Apache Road, Suite 200
Las Vegas, NV 89147
Phone: (702) 889-7824**

OCTOBER 2020

PROJECT 4320.0010

**RCI Engineering
500 South Rancho Drive, Suite 17
Las Vegas, NV 89106
www.rcinevada.com**

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin Village 22 Parcels C and D Date: October 2020

Location of Development: a) Descriptive (Cross Streets) North/South: Desert Foothills Drive
East/West: Kestrel Creek Avenue

b) Section: 14 Township: 20 South Range: 59 East

c) APN : 137-14-410-011, 137-14-410-012

Name of Owner: Woodside Homes of Nevada LLC

Telephone No.: 702-889-7824 Fax No.: _____ E-Mail Address: _____

Address: 4670 South Fort Apache Road, Suite 200, Las Vegas, NV 89147

Contact Person-Name: Rick J. Read, P.E. Telephone No.: 702-453-0800

* E-Mail Address: rread@rcinevada.com Fax No.: 702-453-0801

Firm: RCI Engineering

Address: 500 South Rancho Drive, Suite 17 Las Vegas, Nevada 89106

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☒	Planned Unit Development	☐	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		

1. Total Owned Land Area: At Site: 23.9 acres Being Developed/Disturbed: 23.9 acres

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes** ☒ No

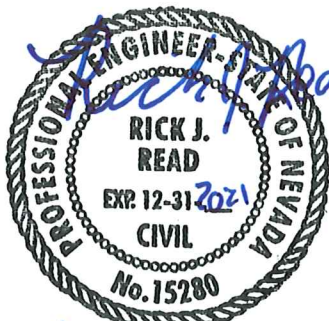
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: 0 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Update #1 to the Flood Control Master Plan Update Summerlin West Planning Area

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: East into storm drain in Desert Foothills Drive and south into storm drain in Kestrel Creek Avenue

8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

***New Required Field**

****Review and concurrence of the Clark County Regional Flood Control District is required.**

Revision	Date

Local Entity File No. _____

REFERENCE:

STANDARD FORM 1

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: Summerlin Village 22 Parcels C and D		Map ID:
Firm Name: RCI Engineering		Engineer: Rick Read, P.E.
Address: 500 South Rancho Drive, Suite 17		
City: Las Vegas	State: Nevada	Zip: 89106
Phone Number: 453-0800	Fax Number: 453-0801	
Property Owner: Woodside Homes		
Address: 4670 South Fort Apache Road, Suite 200		
City: Las Vegas	State: Nevada	Zip: 89147
Reviewed By:	Date Received:	Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT:

Yes	No	
☒	☐	Design Manual Standard Form 1 with the engineer's seal and signature.
☒	☐	Design Manual Standard Form 4 .
☒	☐	2 copies of the 24" x 36" Drainage Plan.
☐	☒	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

Reference:	STANDARD FORM 2
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HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS

Yes	No	
☒	☐	A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
☒	☐	A copy of the current CCRFCD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.
☒	☐	On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
☒	☐	Vicinity Map with local and major cross streets identified and a north arrow.
☒	☐	Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.

III. DRAINAGE PLAN

Yes	No	
☒	☐	Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
☒	☐	Minimum scale: 1" = 60'.
☒	☐	Project name.
☒	☐	Vicinity Map with local and major cross streets.
☒	☐	Revision box.
☒	☐	North arrow and bar scale.
☒	☐	Engineer's/consultant's address and phone number.
☒	☐	Elevation datum and benchmark.
☒	☐	Legend for symbols and abbreviations.
☒	☐	Cut/fill scarps, where applicable.
☒	☐	Street names, grades, widths.
☒	☐	Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☒	☐	Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
☒	☐	Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
☒	☐	Proposed typical street sections.
☐	☒	N/A Streets with off-set crowns.
☒	☐	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
☒	☐	Property lines.
☒	☐	Right-of-way lines and widths, existing and proposed.
☒	☐	Existing improvements and their elevations.
☒	☐	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
☒	☐	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
☒	☐	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
☒	☐	Location and cross-section of street capacity calculations.
☒	☐	Cross-sectional detail for channels, including cutoff wall locations.
☒	☐	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
☒	☐	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
☐	☒	N/A Location and detail of existing, proposed, and future block wall openings. Minimum size is 16"x48". Wrought iron gate is required for flows > 10 cfs.
☐	☒	N/A Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☒	☐	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood Walls with 8-inch concrete masonry unit.
☒	☐	Building and/or lot numbers.
☒	☐	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
☐	☒	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.
☐	☒	For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
☐	☒	Appropriately elevated "humps" 6 inches above the 100-year water surface elevation at site accesses where the intent is to protect the site from the Q ₁₀₀ flows.
☒	☐	Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.

IV. HYDROLOGIC ANALYSIS

Yes	No	
☒	☐	Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated.
☐	☒	Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
☒	☐	Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
☒	☐	Use of correct precipitation values in and around the McCarran Airport Rainfall Area.
☒	☐	A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations.
☒	☐	A summary table of storm water flows showing basin area, Q ₁₀ and Q ₁₀₀ for both individual basins and combined basin flows, where acceptable.
☒	☐	Copies of supporting technical information referenced from a previously approved study and a statement accepting these results.
☒	☐	On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
		Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
	N/A	
X		Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
X		A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
	N/A	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
X		Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
X		Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
	N/A	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones.
		• Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub- and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
X		Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
X		Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
X		The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.

REFERENCE:

STANDARD FORM 2

TABLE OF CONTENTS

<u>No.</u>		<u>Page</u>
I.	INTRODUCTION	1
II.	LOCATION AND DESCRIPTION	1
III.	FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD HAZARD ANALYSIS	4
IV.	CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT FACILITIES	4
V.	HYDROLOGY	7
VI.	EXISTING CONDITIONS	8
VII.	ULTIMATE CONDITIONS	8
VIII.	INTERIM CONDITIONS	11
IX.	PRORATED STORM FLOWS AND HYDRAULICS	14
X.	CONCLUSIONS AND RECOMMENDATIONS	17
XI.	REFERENCES	18

LIST OF TABLES

<u>No.</u>	<u>Description</u>	<u>Page</u>
1	INTERIM CONDITIONS HEC-1 MODEL SUMMARY	9
2	ULTIMATE CONDITIONS HEC-1 MODEL SUMMARY	11

LIST OF FIGURES

<u>No.</u>	<u>Description</u>	<u>Page</u>
1	VICINITY MAP	2
2	LOCATION MAP	3
3	F.I.R.M.	5
4	CCRFGD FACILITIES	6
5	ULTIMATE CONDITIONS MAP	10
6	INTERIM CONDITIONS MAP	13

I. INTRODUCTION

Woodside Homes is proposing to develop a 23.9 acre site as a single family residential project located on the west side of Desert Foothills Drive. Between the COS-2 wash and Kestrel Creek Avenue in Village 22 of Summerlin. The overall Project will consist of 110 single family residences with onsite open space, landscaping, and perimeter block walls. The Project will be built as 2 Units. Unit 1 will include construction of 49 lots with full improvements and with rough grading for Unit 2. The Unit 2 improvement plans are not being submitted with this submittal. Unit 2 will be constructed in the future and will include full improvements for an additional 61 Lots. The Unit 2 drainage patterns have been addressed in the ultimate conditions analysis and an Update letter to this Project will be submitted with the Unit 2 improvement plans in the future. The purpose of this report is to accompany the civil improvement plans for Unit 1, to provide detailed hydrological and hydraulic analyses for the site, and to determine adequate protection for the Project from offsite and onsite flows. The following tasks were performed in the preparation of this report:

- ◆ Identify previous drainage studies for the project site and surrounding areas.
- ◆ Identify the FEMA floodplain designation for the project site.
- ◆ Estimate runoff generated for the peak onsite 10-year and 100-year return period storms for existing, proposed, and ultimate conditions (offsite flows are referenced).
- ◆ Recommend drainage facilities to protect the project from storm runoff.

II. LOCATION AND DESCRIPTION

The Project is located in Section 14, Township 20 South, Range 59 East, M.D.M., in Las Vegas, Nevada. The site is located on the west side of Desert Foothills Drive and on the south side of the COS-2 Wash in Village 22 of Summerlin. Kestrel Creek Avenue and Kettle Ridge Drive border the Project on the south and west. The COS-2 wash on the north will remain unimproved and a future trail will be constructed along the north property line of the Parcels C and D. There is an existing interim channel and future Summerlin Village 31 street improvements that borders the project on the west. The Unit 2 improvements will be addressed in the Unit 2 Drainage Study Update at a later date. The phase line has been included on Figure 2.



300' 0' 300' 600'



SCALE: 1" = 600'

PROJECT SITE

LAKE MEAD BLVD
PHASE LINE

CC 215

COS 2

UNIT 2

UNIT 1

KETTLE RIDGE DR.

KESTREL CREEK AVE

DESERT FOOTHILLS DR.

SUMMERLIN VILLAGE 22

PARCELS CD

WOODSIDE HOMES

FIGURE 2

LOCATION MAP

RCI Engineering

500 SOUTH RANCHO DRIVE SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

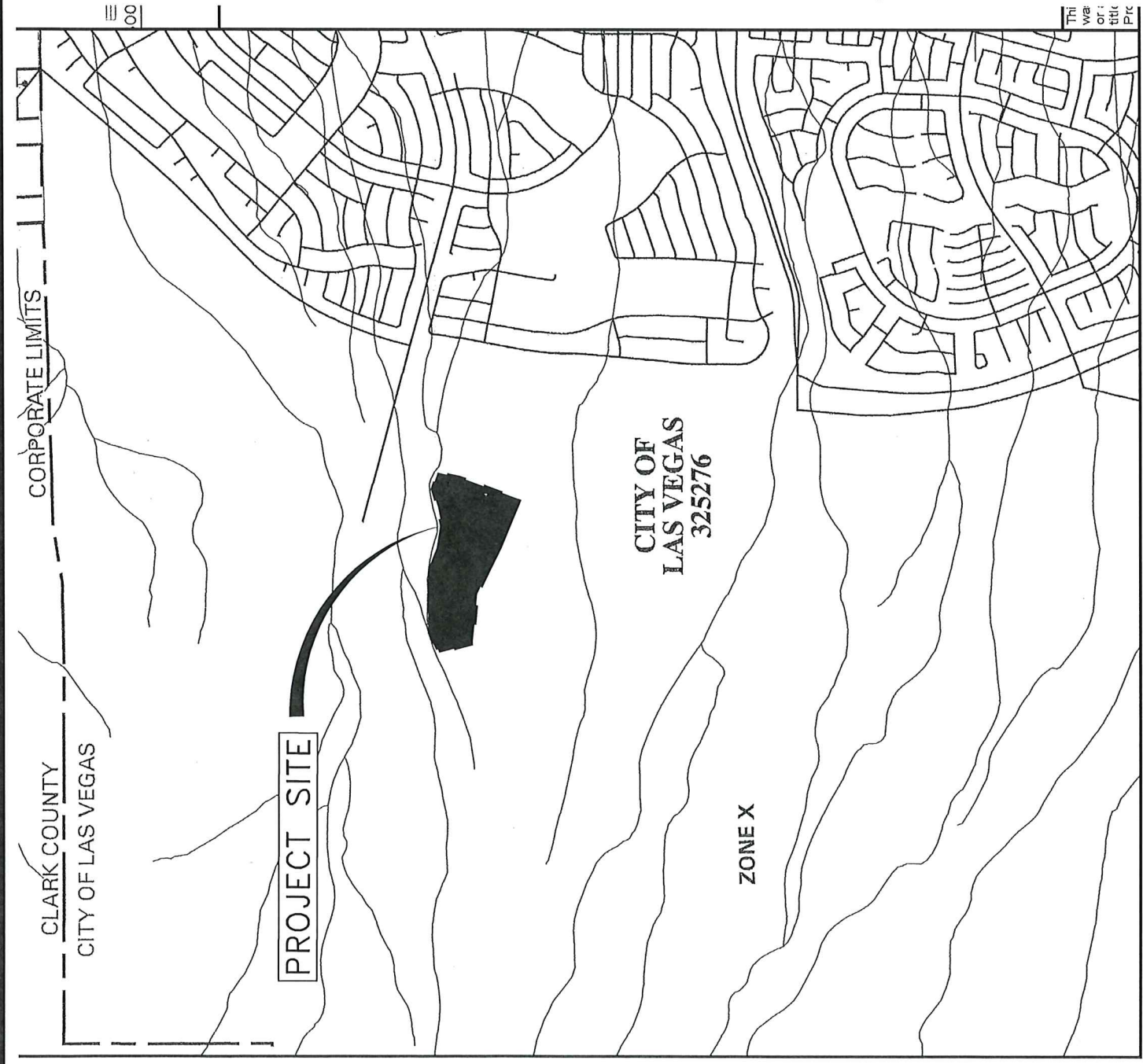
The site is presently undeveloped with sparse vegetation. The proposed development will consist of residential housing with Type A drainage. The project will include lots with an average lot size of around 6,000 square feet. The Project will have a gated entrance from Kestrel Creek Avenue. Interior streets will be private with private surface maintenance. The entrance road will be a 65-foot private roadway with a continuous cross slope from west to east, "L" Type curb and gutter, median island, a 5-foot detached sidewalk and landscaping on both sides. The majority of the interior residential streets will consist of a 41-foot wide private roadway with a normal crown section, Roll type curb and gutter and a 5-foot wide sidewalk on one side. Perigrin Point Avenue will be 34 feet wide with "R" curb and gutter and a 4 foot sidewalk on 1 side. There is a short stub street (High Perch Street) that will be 36-feet wide with Roll Curb and gutter.

III. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD HAZARD ANALYSIS

Figures 3 was reproduced from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) containing Community Panel Numbers 32003C2150E and 2125E, dated September 27, 2002. Review of the FIRM panels shows that the Project is currently located within a Zone X. Zone X areas are defined as areas outside of the 100-year floodplains; areas of 100 year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100 year flood. Therefore, the project is not located within a FEMA-designated Special Flood Hazard Area (SFHA).

IV. CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT FACILITIES

Figure 4 is reproduced from Figure F-22 of the 2018 *Clark County Regional Flood Control District (CCRFCD) Master Plan Update* (Reference 1, hereinafter referred to as the 2018 MPU). This figure depicts the project site in relation to existing and proposed CCRFCD facilities. As shown on the figure, the site is not adjacent to any CCRFCD Facilities. The nearest facility is GOB3 0000 in Lake Mead Boulevard which is approximately 650 feet northeast of the project. Therefore, the Project is not located near or adjacent to a CCRFCD facility and concurrence will not be required for this drainage study.



SUMMERLIN VILLAGE 22
PARCELS CD
WOODSIDE HOMES
FIGURE 3
F.I.R.M. MAP

RCI Engineering
500 SOUTH RANCHO DRIVE, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801



2018
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

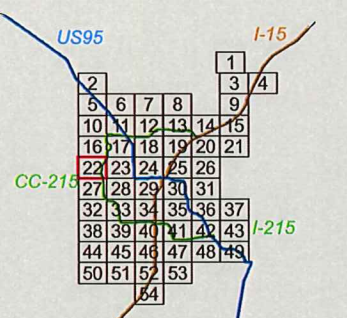
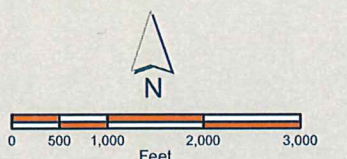
FIGURE F-22

FLOOD CONTROL FACILITIES

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Detention Basin
- Culvert or Bridge Crossing
- Stormdrain
- Lined Channel
- Unlined Channel
- Levee/Dike
- Natural Wash/Floodway
- ID-Mile Separator
- Remove & Replace/Parallel Facilities
- Category A
 - Channel
 - Stormdrain
 - Crossing
- Category B
 - Channel
 - Stormdrain
 - Crossing

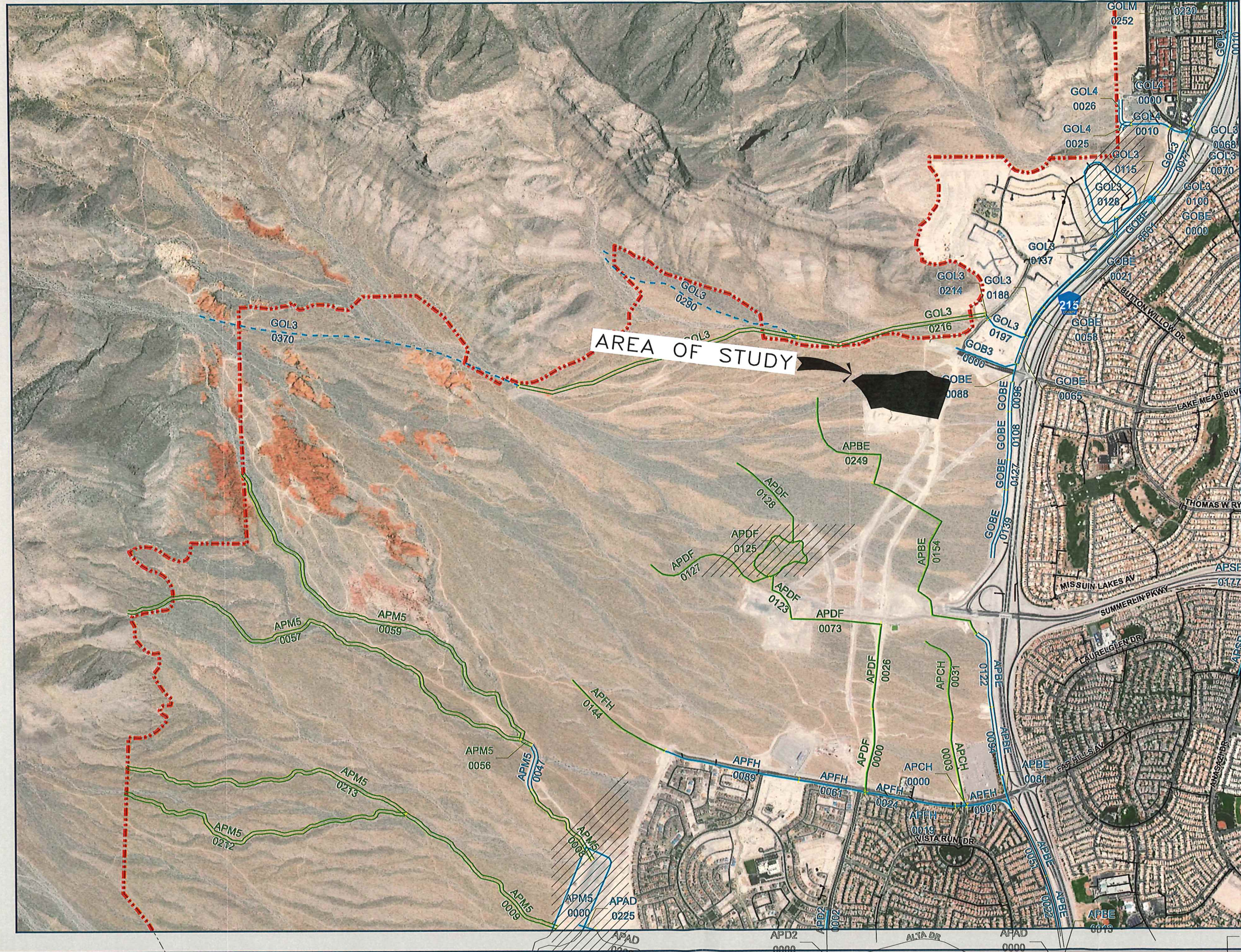
FIGURE 4



ATKINS

Member of the SNC-Lavalin Group

Louis Berger



V. HYDROLOGY

The methodology presented in this study is in compliance with the *CCRFCD Hydrologic Criteria and Drainage Design Manual* (Reference 2, hereinafter referred to as the Manual).

Model Description - The watersheds were modeled using the SCS Unit Hydrograph method within the U.S. Army Corps of Engineers *HEC-1 Flood Hydrograph Package* (Reference 3).

Precipitation - The project site lies outside of the McCarran Rainfall Area as delineated in the Design Manual on Figures 503 and 506. The 10-year and 100-year point precipitation values for the project will be 1.82 inches and 3.40 inches during a 6-hour storm event, respectively. This equates to a 0.55 ratio between the 10-year and 100-year storm events and matches the precipitation values from the Conceptual Study and fourth Update. (See Appendix A)

Since the drainage area for the project will be less than 8 square miles, an SDN 3 design storm distribution per Table 503 of the Manual was selected for use in the HEC-1 computer model.

Curve Numbers (CN) –The soils information for this Project was referenced from the Fourth Update and then checked with the NRCS Website. The site is comprised of soil type 155 Cave. The Natural Resource Conservation Service has identified the major hydrologic rating for that soil as “D”. Pertinent soils information from the NRCS Website has been included in Appendix A.

For the given soils, CN values were determined from the appropriate columns of Table 602 of the Manual. Existing conditions storm flows have been referenced and will be discussed in detail in the existing conditions section of this report. For the ultimate conditions, the developed site was modeled with a CN value of 95 (Commercial, since the most of the lots are 6,000 square feet). For the interim conditions, the site was modeled with CN values of 90.8 and 93.3 with both onsite subbasins being partially rough graded. CN calculations have been included in Appendix A.

Drainage Areas and Flow Patterns - The subbasins and flow patterns used in the hydrologic modeling for ultimate conditions and for the interim conditions used electronic files of the grading plans for the Project and for the surrounding improvements constructed by Summerlin.

Lag Time - The lag time (TLAG) is described as the time between the center of mass of rainfall and the time of peak discharge from a basin. Lag time can be related to time of concentration (T_c) by the following relationship: $TLAG = 0.6(T_c)$. The time of concentration (T_c) is defined as the time required for runoff to flow from the most remote part of the basin area to the outlet of the basin or a design point under consideration. The procedure for calculating T_c is outlined in Section 602 of the Manual. Lag time calculations for the drainage subbasin has been included in Appendix A on Standard Form 4.

VI. EXISTING CONDITIONS

Existing conditions for the site and surrounding area have been referenced from the *Technical Drainage Study For Western Segment Las Vegas Beltway From Summerlin Parkway to Cheyenne Avenue* by G. C. Wallace Engineering (Reference 4, hereinafter referred to as the Beltway Study). A copy of Figure 5 from the Beltway Study showing Parcel C and D site has been included in Appendix C. Parcels C and D was modelled as a part of Subbasin X-6N in the existing condition as shown on FIG5 in Appendix C. Since the overall existing conditions for Village 22 has been approved with the Beltway Study and is being referenced for this study, no existing condition hydrologic analysis has been provided.

VII. ULTIMATE CONDITIONS

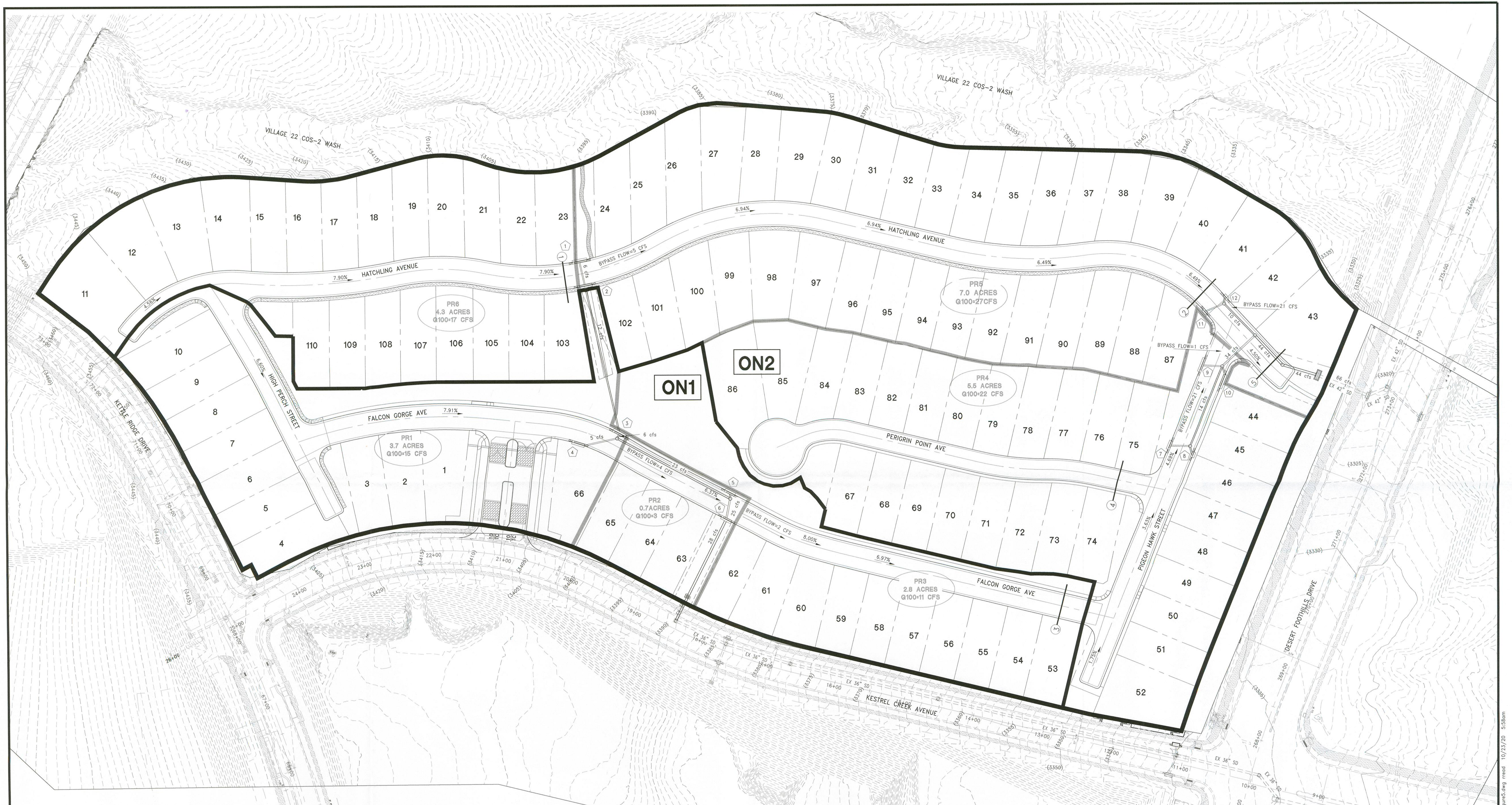
Figure 6 depicts the ultimate condition flow patterns and the storm drain plan for the Project. The ultimate condition HEC-1 model has been included in Appendix A. Table 1 summarizes the ultimate condition 100-year and 10-year flow rate for the project site. Prorated storm flows and all hydraulic calculations will be addressed in the Prorated Storm Flows and Hydraulics section of this report. The site has been graded to drain west to Desert Foothills Avenue which matches the existing drainage patterns for the Project site.

TABLE 1 ULTIMATE CONDITIONS HEC-1 MODEL SUMMARY			
SUBBASIN OR CP*	BASIN AREA (AC)	100 YR (cfs)	10 YR (cfs)
ON1	7.15	29	15
ON2	16.74	65	33

*See Figure 6

Storm drain has been designed to intercept a portion of the storm runoff from the site and convey the intercepted flows to an existing 36-inch RCP in Kestrel Creek Avenue. Kestrel Creek Avenue was designed as a portion of the technical drainage study for *Summerlin West Village 22 Kestrel Creek Avenue (Street I): Desert Foothills Drive to Kettle Ridge Drive (Street J)*, by Atkins (Reference 5, hereinafter referred to as the Kestrel Creek Study). The Kestrel Creek Study was approved by the CLV on December 2, 2019. The hydraulics for that storm drain system will be addressed in the Prorated Storm Flows and Hydraulics section of this report. The site has been designed to drain to northeast corner of the site where there is an existing 4-foot by 12-foot NDOT Type 2 catch basin and 42-inch RCP at the northeast corner of the Project site. All flows from the site with the exception of the flows directed to Kestrel Creek will drain to the existing 42-inch RCP from Desert Foothills Drive. The existing NDOT inlet and 42-inch RCP were designed as a part of the technical drainage study for *Summerlin West Village 22 Desert Foothills Drive Fleet Wing Avenue (Street G) to Lake Mead boulevard*, by Atkins (Reference 6, hereinafter referred to as the Desert Foothills Study). The Desert Foothills Study was approved by the CLV on December 2, 2019.

The existing improvements for Kettle Ridge Drive on the west were designed as a part of the *Technical Drainage Study for Summerlin West Village 22 Kettle Ridge Drive (Street J) Fleet Wing Avenue (Street G) to Lake Mead boulevard*, by Atkins (Reference 7, hereinafter referred to as the Kettle Ridge Study). The Kettle Ridge Study final approval was issued by the CLV on March 19, 2019 and CCRFCD concurred with that study on March 5, 2019. As shown in that drainage study and plans included in Appendix C, the site is protected from offsite storm flows by the street improvements and interim riprap lined channel. The hydraulics for that street section will be addressed in the Prorated Storm Flows and Hydraulics section of this report.



LEGEND

- PROPOSED FLOW DIRECTION
- PROPOSED SUBBASIN BOUNDARY
- PRORATED BASIN BOUNDARY
- PROPOSED STORM DRAIN PIPE
- EXISTING STORM DRAIN PIPE
- PROPOSED DRAINAGE SUBBASIN
- CROSS SECTION LOCATION
- PRORATED DRAINAGE BASIN

ON1

PR X

DROP INLETS

(1) 20' TYPE CM2 INTERCEPT 12 CFS, BYPASS 5	(8) (1) 7.5' TYPE CM2 INTERCEPT 6 CFS, BYPASS 11.5
(3) (1) 20' TYPE CM2 INTERCEPT 6 CFS, BYPASS 1.5	(9) (2) 20' TYPE CM2 INTERCEPT 20 CFS, BYPASS 2
(4) (1) 17.5' TYPE CM2 INTERCEPT 5 CFS, BYPASS 2.5	(11) (2) 7.5' TYPE CM2 INTERCEPT 10 CFS, BYPASS 21
(5) (2) 15' TYPE CM2 INTERCEPT 5 CFS, BYPASS 2	(13) EXIST 4X12 NDOT CATCH BASIN INTERCEPT 22 CFS, BYPASS 0
(7) (1) 12.5' TYPE CM2 INTERCEPT 8 CFS, BYPASS 9.5	

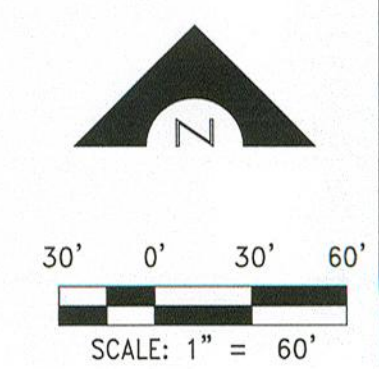
PRORATED STORM FLOWS

100-YEAR STORM FLOW = 94 CFS\23.89=3.9 CFS PER ACRE

100-YEAR, PR1=3.7 ACRES X 3.9 CFS/ACRE=15 CFS
100-YEAR, PR2=0.8 ACRES X 3.9 CFS/ACRE=4 CFS
100-YEAR, PR3=2.7 ACRES X 3.9 CFS/ACRE=10 CFS
100-YEAR, PR4=5.5 ACRES X 3.9 CFS/ACRE=21 CFS
100-YEAR, PR5=7.0 ACRES X 3.9 CFS/ACRE=27 CFS
100-YEAR, PR6=4.3 ACRES X 3.9 CFS/ACRE=17 CFS

100-YEAR HYDRAULIC SECTIONS					
Location	Slope (%)	Q ₁₀₀ (cfs)	D ₁₀₀ (ft)	V ₁₀₀ (ft/sec)	D*V ₁₀₀
Section 1	7.90	17	0.30	7.17	2.2
Section 2	6.49	31	0.37	7.38	2.7
Section 3	8.12	13	0.28	6.57	1.8
Section 4	3.00	15	0.39	4.47	1.7
Section 5	4.50	23	0.36	6.00	2.2

ULTIMATE CONDITIONS HEC-1 MODEL SUMMARY			
SUBBASIN OR CP	Basin Area (AC)	100 YR (cfs)	10 YR (cfs)
ON1	7.15	29	15
ON2	16.74	65	33



VILLAGE 21B PARCELS C AND D
WOODSIDE

FIGURE 5
ULTIMATE CONDITIONS DRAINAGE
AND STORM DRAIN MAP

RCI Engineering

500 South Rancho Drive, suite 17
LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

CA: S220_ Woodside\0010_222_CD\ DRAIN FIGURES\ORIGINAL\figure5.dwg mod 10/23/20 5:55pm

VIII. INTERIM CONDITIONS

Figure 6 depicts the interim condition onsite subbasins and flow patterns for the Project. The interim condition HEC-1 model has been included in Appendix A. Table 2 summarizes the interim condition 100-year and 10-year flow rate for the site. The site is being broken into two units for development purposes. Under interim conditions the entrance from Kestrel Creek Avenue and the south half of the site will be constructed with the Unit 1 improvement plans.

TABLE 2 INTERIM CONDITIONS HEC-1 MODEL SUMMARY			
*SUBBASIN OR CP	BASIN AREA (AC)	100 YR (cfs)	10 YR (cfs)
INT1	7.15	26	12
INT2	16.74	62	30

*See Figure 5

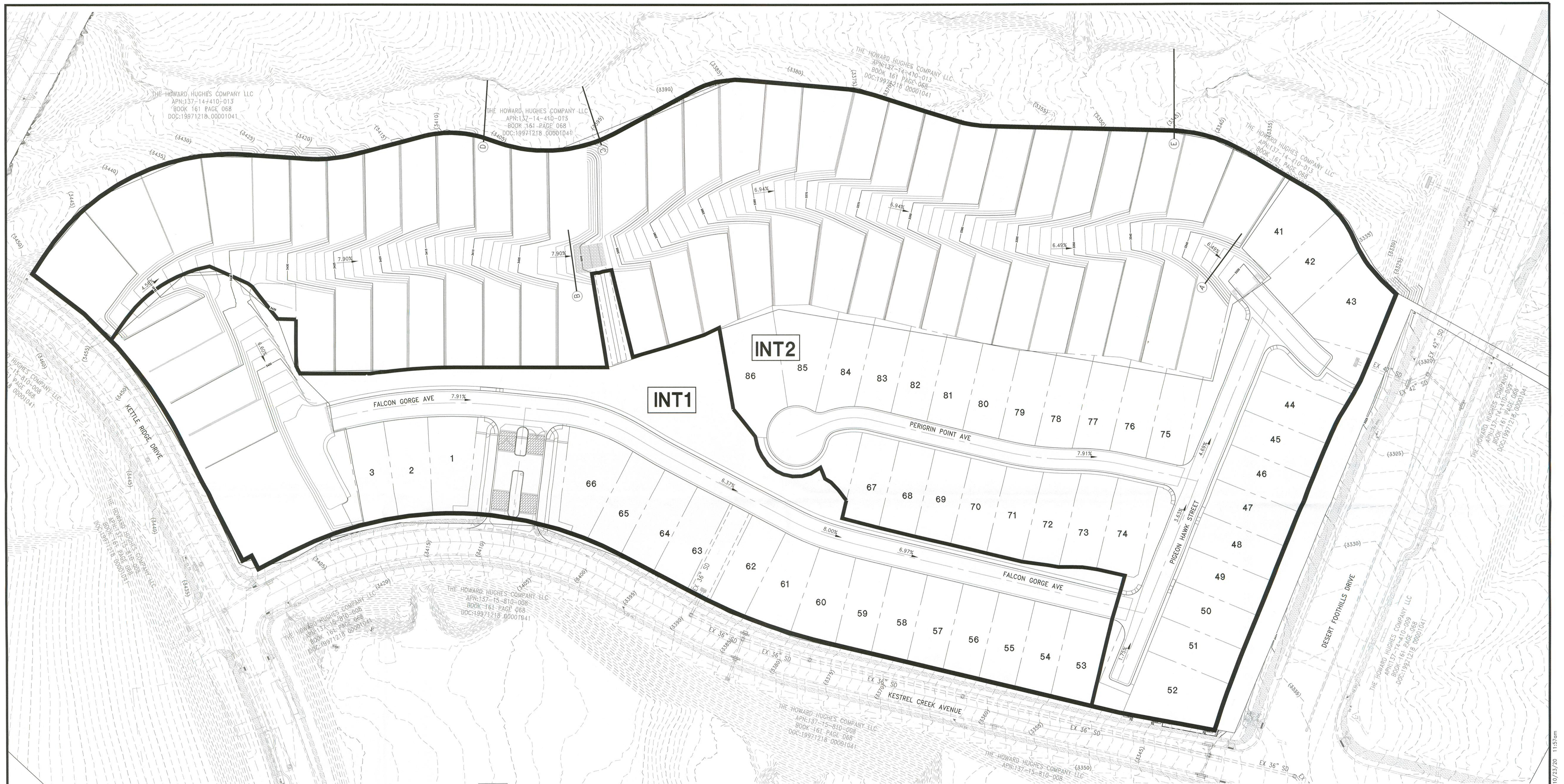
The rough grading for Unit 2 will be constructed at the same time as the full residential improvements are constructed for Unit 1. The Hec-1 model for the interim conditions has been enclosed in Appendix A. The interim condition hydrologic calculations use the same drainage subbasins and lag lengths, but the CN values have been prorated and revised for a portion of the basins to be newly graded conditions in the Standard Form 4 and the HEC-1 model. The 100-year and 10-year runoff produced by the site will be less than in the ultimate condition. Since the ultimate conditions storm flows are the worst case, all storm drain and developed street hydraulic calculations for this study will be based on the ultimate conditions storm flows. The perimeter walls and all of the storm drain for the project site will be constructed with the Unit 1 improvement plans.

In the interim conditions normal depth calculations were performed for the rough graded streets. There will be approximately 17 cfs (25% of INT2) at Section B during a 100-year storm event. The velocity of the 100-year storm flow will be 3.97 feet-per-second which is considered non-erosive. The will be approximately 35 cfs at Section A during a 100-year storm event. That is 55 percent of Subbasin INT2 which drains to that location. The velocity of the 100-year storm flow will be 4.99 feet-per-second which is considered non-erosive. A riprap pad will be constructed where the full street improvement meet the rough

grading to prevent undercutting of the street improvements.

There will be a 100-year storm flow of 100 cfs draining in the COS-2 wash on the north. That was determined in the Desert Foothills Study. Pertinent excerpts from the Desert Foothills study have been included in Appendix C. An Update has been or will be submitted to CLV in the near future from Atkins Engineering for the Desert Foothills Drive Study. In that Study Atkins Engineering has determined that there will be 100 cfs in the COS-2 Wash and that the 42-inch stub to the Parcels C-D site is capable of handling 97 cfs. Please see the Atkins exhibit in Appendix C along with an e-mail explaining the update that has been provided by Atkins Engineers.

Normal Depth calculations have been performed for the wash along the north. In most cases the 100-year storm flow of 100 cfs determined by the Desert Foothills analysis by Atkins Engineering will drain away from the Project site. Please see the normal depth calculations in Appendix B. There is one section of the natural wash where the 100-year storm flows will drain right along the north property line of Parcels C and D. That occurs at Cross Section C. Riprap is proposed along that section of the wash and the riprap will be extended 3-feet below the wash to prevent undercutting. Please refer to Section 19 on Sheet D-1 of the improvement plans.

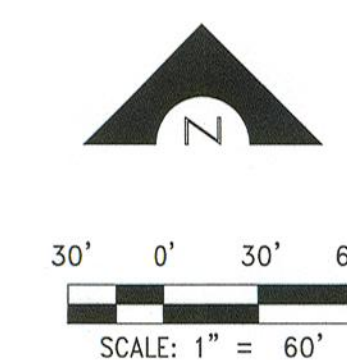


LEGEND

- 1 PROPOSED SUBBASIN BOUNDARY
— CROSS SECTION LOCATION
INT 1 SUBBASIN NAME
→ FLOW ARROW

100-YEAR ROUGH GRADE AND COS-2 HYDRAULIC SECTIONS					
Location	Slope (%)	Q ₁₀₀ (cfs)	D ₁₀₀ (ft)	V ₁₀₀ (ft/sec)	D*V ₁₀₀
Section A	6.49	35	0.19	4.99	n/a
Section B	7.90	17	0.12	3.97	n/a
Section C	7.19	100	1.00	10.19	n/a
Section D	6.41	100	0.47	6.65	n/a
Section E	4.72	100	0.44	4.67	n/a

INTERIM CONDITIONS HEC-1 MODEL SUMMARY			
SUBBASIN OR CP	Basin Area (AC)	100 YR (cfs)	10 YR (cfs)
INT1	7.15	26	12
INT2	16.74	62	30



VILLAGE 21B PARCELS C AND D
WOODSIDE

FIGURE 6
INTERIM CONDITIONS MAP

RCI Engineering

500 South Rancho Drive, suite 17
LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

IX. PRORATED STORM FLOWS AND HYDRAULICS

Prorated storm flows from this study were calculated to model the ultimate conditions onsite discharges to design points. Please see the prorated basins on Figure 5 Ultimate Conditions Drainage and Storm Drain Map. Calculations are based on the overall 100-year storm flow from Subbasins ON1 and ON2 and then divided by the acreage to determine how much runoff per acre will be produced. The acreage of each Prorated Basin is then multiplied by the cfs/acre which equals the cfs per Prorated Basin. Subbasins ON1 and ON2 will generate an ultimate condition 100-year storm flow of approximately 3.9 cfs per acre (94 CFS/23.89 acres). The Prorated Basins 100-year storm flows and calculations have been shown on Figure 5.

The majority of the storm flows produced by Prorated Basins PR1, PR2, and PR6 are intercepted by drop inlets and conveyed south to Kestrel Creek Avenue via storm drain. There is an existing 36-inch storm drain in Kestrel Creek designed to accept storm flows from the site. Drop inlets 1 through 6 will intercept a 100-year storm flow of 28 cfs from those prorated basins allowing a total 100-year storm flow of 2 cfs to bypass the inlets and drain north and east to Hatchling Avenue. Prorated Basins 3, 4, and 5 all drain to the northeast corner of the Project and are intercepted by drop inlets and conveyed via storm drain to an existing 42-inch storm drain line in Desert Foothills Drive. Drop inlets 7 through 12 and an existing four foot by 12-foot NDOT inlet will intercept the remaining 100-year storm flows of 66 cfs from the site and convey those to Desert Foothills Drive via a 30-inch RCP and existing 42-inch RCP. Please refer to Figure 5 for a summary of the drop inlet interception and bypass flow rates along with the 100-year storm drain flows rates.

The site is steep with street slopes ranging from 1.75 percent to as steep as 7.91 percent. Drop inlets have been placed to keep the 100-year storm surface flow below the top of roll curb since the majority of the onsite storm flows are draining with velocities that are erosive. Please see the 100-year Hydraulic Sections Table on Figure 5 and the Flowmaster normal depth calculations in Appendix B. A description of the flows used in the calculations is written on the Flowmaster calculations. Drop inlet interception rates, bypass flows, and the 100-year storm flows in the pipes have been included on Figure 6.

All drop inlets have been designed with a 50 percent clogging factor per City of Las Vegas criteria. Standard Form 6 Spreadsheets and drop inlet calculations for the proposed onsite storm drain have been included in Appendix B. The onsite storm drain conveys the 100-year storm flow of 66 cfs into the existing 42-inch RCP storm drain from Desert Foothills Drive and the 100-year storm flow of 28 cfs into the existing 36-inch RCP storm drain from Kestrel Creek Avenue. The starting HGL for the main line Standard Form 6 spreadsheet to Kestrel Creek Avenue was set at elevation 80.78 at the top of pipe since the 100-year storm flows in the downstream storm drain will flow partial during a 100-year storm event. The downstream storm drain was designed as a part of the Kestrel Creek Study. Sheet 21 from those plans with the starting HGL marked in red has been included in Appendix C with the Mainline Standard Form 6 spreadsheet.

The starting HGL for the main line Standard Form 6 spreadsheet to Desert Foothills Drive was set at elevation 9.60 at the top of pipe since the 100-year storm flows in the downstream storm drain will flow partial during a 100-year storm event. The downstream storm drain was designed as a part of the Desert Foothills Study. Sheet 24 from those plans with the starting HGL marked in red has been included in Appendix C with the Mainline Standard Form 6 spreadsheet. Please note that Atkins Engineering has determined that the downstream storm drain in Desert Foothills Drive is capable of conveying 97 cfs from the Parcels C and D site. Therefore, the 66 cfs in the storm drain will not have a negative impact to downstream facilities.

The easement at the west end of Hatchling Avenue will serve as the emergency overflow path for the Project under the unlikely event that all of the drop inlets on the project become 100-percent clogged. A weir calculation for that easement has been conducted and is included in Appendix B. The weir elevation is set at the top of berm at elevation 2331. As shown in that calculation the finished floor elevations for Lots 43 and 44 adjacent to the easement are a minimum of 1.7 feet above the 100-year storm emergency overflow water surface elevation.

Per City of Las Vegas criteria in the Design Manual, the onsite finish floor elevations shall be set at a vertical distance of 6-inches above highest top of curb elevation or twice the depth of flow in the gutter flow line. Based on the street capacity calculations, the maximum depth of surface flow in the interior streets for the 100-year storm event will be

0.39 ft at cross section 4. To meet 2* depth of flow criteria the finish floor elevations should be set to a minimum of 0.8-feet above highest adjacent flow line elevation. Therefore, the site criteria will be to set all finish floor elevations a minimum of 6-inches above the highest top of curb. All finish floor elevations on the Project site exceed this criteria. Additionally the Energy Grade Line is 0.70 feet and the finish floor elevations for lots 46 and 47 are above the potential water surface elevation at the intersection. The Energy grade line at Section 3 is 0.95 feet and the elevations for lots 50 and 51 are above the potential water surface elevation at the intersection.

Based on the calculated street flow characteristics, the Design Manual criteria for depth (D) and velocity times depth ($V \cdot D$) to be less than 8 during the 100-year storm event will be met. Since in all cases the $D \cdot V$ was less than 6 during the 100-year storm event, 10-year cross section calculations were not warranted.

Perimeter streets hydraulics were reviewed to make sure that the site is protected from storm flows in the adjacent offsite streets. Storm flows in Kettle Ridge Drive have been addressed in the Kettle Ridge Study. As shown in the reference material in Appendix C, the maximum depth of 100-year runoff is 0.39 feet deep in Kettle Ridge Drive adjacent to the site. Future finish floor elevations for Unit 2 are below the street grades and a solid grouted wall will be constructed along Kettle Ridge Drive to provide flood protection for the site. Please see Section 18 on Sheet D-1 and Section 33 on Sheet D-2.

Storm flows in Kestrel Creek Avenue have been addressed in the Kestrel Creek Study. As shown in the reference material in Appendix C, the maximum depth of 100-year runoff is 0.20 feet deep in Kestrel Creek Avenue adjacent to the site. The lots along Kestrel Creek Avenue range from 5 feet above the street improvements to 5 feet below street improvements. A solid grouted wall to 3 courses above highest adjacent grade will protect those lots that are lower than the street grade. Please refer to the cross sections on Sheet D-1 of the improvement plans.

Storm flows in Desert Foothills Drive have been addressed in the Desert Foothills Study. The lots along Desert Foothills Drive range from 4 feet to 14 feet above the street improvements. Therefore those lots are protected from the 100-year storm surface flows in Desert Foothills Drive. Please refer to the cross sections on Sheet D-1.

X. CONCLUSIONS AND RECOMMENDATIONS

1. Methodology used in this report is in compliance with the Clark County Regional Flood Control District (CCRFCD) criteria.
2. The proposed project lies within a FEMA Zone X. Therefore, the project is not currently located in a FEMA-designated Special Flood Hazard Area.
3. The proposed development does not alter existing peak flows or the character of flows downstream of the development.
4. Storm drain facilities proposed within the project and shown on the grading plans will be constructed with the Parcels C and D Unit 1 improvements.
5. Homes to be constructed within this project will have adequate freeboard to be protected from flows conveyed in the adjacent streets and COS-2 wash.
6. Summerlin will construct the COS-2 Wash improvements.

XI. REFERENCES

1. Clark County Regional Flood Control District, *Clark County Regional Flood Control District - The 2013 Las Vegas Valley Master Plan Update*, September 2008.
2. Clark County Regional Flood Control District *Hydrologic Criteria and Drainage Design Manual*, updated August 1999.
3. U.S. Army Corps of Engineers, *HEC-1 Flood Hydrograph Package*, June 1998.
4. G. C. Wallace Engineering, *Technical Drainage Study For Western Segment Las Vegas Beltway From Summerlin Parkway to Cheyenne Avenue*, January 2000.
5. Atkins, *Summerlin West Village 22 Kestrel Creek Avenue (Street I): Desert Foothills Drive to Kettle Ridge Drive (Street J)*, December, 2019.
6. Atkins, *Summerlin West Village 22 Desert Foothills Drive Fleet Wing Avenue (Street G) to Lake Mead Boulevard*, December, 2019.
7. Atkins, *Summerlin West Village 22 Kettle Ridge Drive (Street J) Fleet Wing Avenue (Street G) to Lake Mead boulevard*, March, 2019

APPENDIX A –LAND PLAN CONDITIONS AND HYDROLOGIC CALCS

Tentative Map

Precipitation References

Soils References

Curve Number Reference

Ultimate Conditions

Curve Number Calculations

Standard Form 4

HEC-1 Model

Interim Conditions

Curve Number Calculations

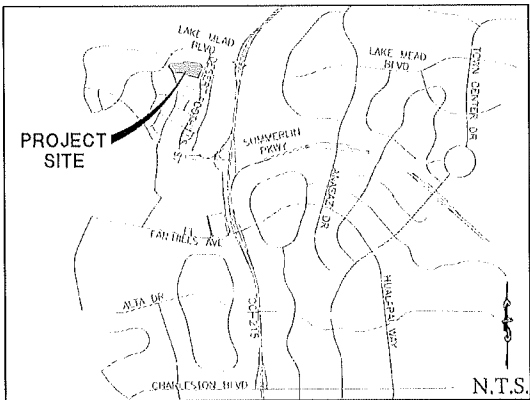
Standard Form 4

HEC-1 Model

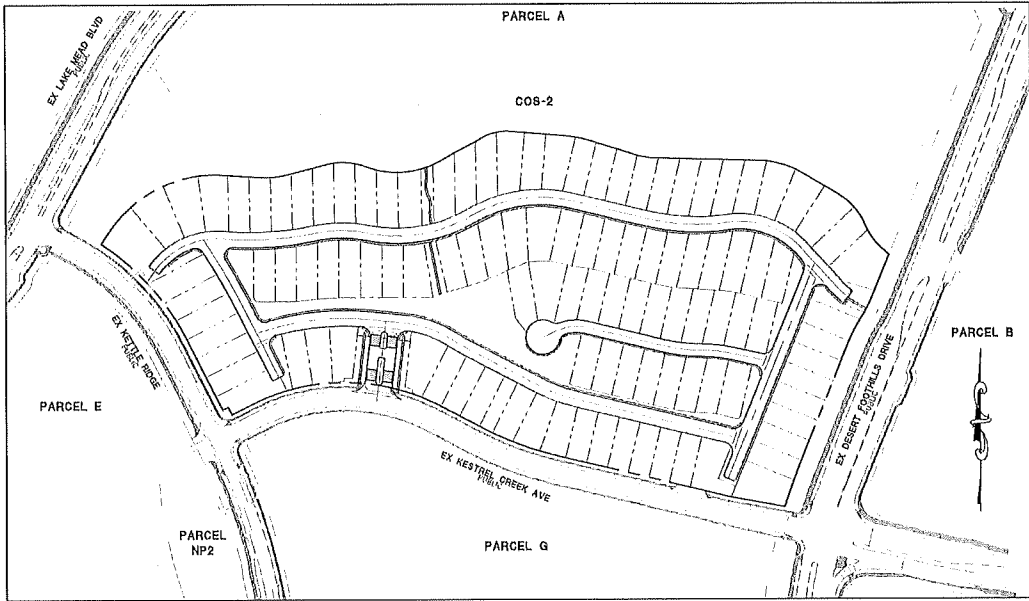
TENTATIVE MAP FOR
FALCON CREST
SUMMERLIN V22 PARCELS C AND D
A SINGLE FAMILY RESIDENTIAL SUBDIVISION
BY



23.89 +/- ACRES
PORTION OF APN 137-14-410-011
& 137-14-410-012



VICINITY MAP
NOT TO SCALE



SITE PLAN
NOT TO SCALE

GENERAL NOTES

- ALL IMPROVEMENTS SHALL CONFORM TO THE UNIFORM STANDARDS AND SPECIFICATIONS OF CLARK COUNTY, NEVADA, THE DESIGN GUIDELINES FOR SUMMERLIN V21, AND SPECIFICATIONS OF THE CITY OF LAS VEGAS UNLESS NOTED OTHERWISE.
- UTILITY SERVICES PROVIDED AS FOLLOWS:
WATER..... LAS VEGAS VALLEY WATER DISTRICT
ELECTRIC..... NV ENERGY
GAS..... SOUTHWEST GAS CORPORATION
SEWER..... CITY OF LAS VEGAS
SOLID WASTE DISPOSAL..... REPUBLIC SERVICES
TELEPHONE..... CENTURYLINK
- UTILITY EASEMENTS TO BE DEDICATED TO RESPECTIVE AGENCIES.
- SEWER CONTRIBUTION = 0.028 M.G.D. AVG.
SEWER CONTRIBUTION = 0.036 M.G.D. PEAK 110 LOTS
- BUILDING SETBACKS TO COMPLY WITH CITY OF LAS VEGAS DEVELOPMENT CODE OR APPROVED WAIVERS.
- STORM WATER TO SURFACE DRAIN ON STREETS AND IN STORM DRAINS.
- THIS DEVELOPMENT IS SHOWN IN ITS ENTIRETY ON THIS TENTATIVE MAP.
- THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS DESIGNATED BY FEMA FIRM MAP # 32003C2150E DATED 09/27/2002
- ALL INTERIOR SEWER AND WATER MAINS ARE 6" UNLESS OTHERWISE SHOWN.
- ALL INTERIOR STREETS ARE PRIVATE.
- ALL CURB RADIUS = 20' AT INTERSECTIONS UNLESS OTHERWISE SHOWN.
- THIS SUBDIVISION WILL HAVE CC&M'S & TO MAINTAIN LANDSCAPING IN PERPETUITY BY THE HOME OWNER'S ASSOCIATION.
- THERE ARE NO OBSERVABLE FAULTS OR FISSURES ON OR NEAR THIS SITE.
- SEEPS, SPRINGS, OR OTHER INDICATIONS OR HIGH GROUND WATER LEVELS HAVE NOT BEEN LOCATED WITHIN 20 FEET OF THE EXISTING GROUND SURFACE.
- PRIVATE INTERIOR STREETS ARE CITY OF LAS VEGAS PUBLIC SEWER EASEMENTS, PUBLIC UTILITY EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS. SURFACE TO BE PRIVATELY MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID SLV0920W6,
RIVET AND PLATE IN TOP OF CURB AT THE SE CORNER OF
CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAV8 89)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE
OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M.
AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN
BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL
RECORDS, CLARK COUNTY, NEVADA.

LEGAL DESCRIPTION

BEING ALL OF LOTS "C" AND "D" AS SHOWN BY MAP THEREOF ON
FILE IN BOOK 161, PAGE 68 OF PLATS IN THE CLARK COUNTY
RECORDS' OFFICE, NEVADA, LYING WITHIN THE SOUTH HALF (S1/2)
OF SECTION 14 AND THE SOUTHEAST QUARTER (SE1/4) OF SECTION
15, ALL IN TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF
LAS VEGAS, CLARK COUNTY, NEVADA.

LEGEND

RIGHT-OF-WAY	---
CENTERLINE	---
EASEMENT	---
MATCH LINE	---
PHASE LINE	---
PROPOSED PUBLIC SEWER LINE	---X" SWR
PROPOSED PUBLIC WATERLINE	---X" WTR
EXISTING PUBLIC SEWER LINE	---X" SWR
EXISTING PUBLIC WATERLINE	---X" WTR
PROPOSED SIDEWALK	---
PROPOSED FIRE HYDRANT	---
EXISTING STREET LIGHT	---
INDEX CONTOUR	2050
INTERMEDIATE CONTOUR	---
LOT NUMBER	1
RATE OF GRADE	2.00%
RIGHT OF WAY	ROW
SIDEWALK	SW
SQUARE FEET	SF
COMMON ELEMENT	CE
POINT OF CONNECTION	POC

OWNER

HOWARD HUGHES COMPANY LLC.
10845 GRIFFITH PEAK DRIVE, SUITE 100
LAS VEGAS, NEVADA 89135

DEVELOPER



DESIGN ENGINEER.



DISCLAIMER NOTE.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

CONNECTIVITY TABLE

LINKS:
INTERNAL= 8
PEDESTRIAN ACCESS= 2 (0.5 EACH)
TOTAL OF LINKS= 9

NODES:
INTERNAL STREET INTERSECTIONS= 6
CUL-DE-SACS= 1
TOTAL OF NODES= 7

LINKS/HOMES= 9/7
CONNECTIVITY SCORE TOTAL= 1.28

LAND USE INFORMATION.

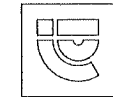
APN = 137-14-410-011 & 137-14-410-012
CURRENT ZONING = PC (SF3)
PROPOSED ZONING = PC (SF3)
TOTAL GROSS ACREAGE = 23.89 ACRES

LOTS = 110
DENSITY = 4.66 LOTS/ACRE
OPEN SPACE PROVIDED = 96,050 SF
OPEN SPACE REQUIRED = 11,000 SF
MINIMUM LOT SIZE = 6,000 SF
MAXIMUM LOT SIZE = 12,484 SF
AVERAGE LOT SIZE = 6,862 SF

SHEET INDEX

SHEET No.	OWG ID	DRAWING DESCRIPTION
1	TM-1	COVER SHEET
2	TM-2	TENTATIVE MAP OVERALL
3	TM-3	TENTATIVE MAP (SHEET 1 OF 8)
4	TM-4	TENTATIVE MAP (SHEET 2 OF 8)
5	TM-5	TENTATIVE MAP (SHEET 3 OF 8)
6	TM-6	TENTATIVE MAP (SHEET 4 OF 8)
7	TM-7	TENTATIVE MAP (SHEET 5 OF 8)
8	TM-8	TENTATIVE MAP (SHEET 6 OF 8)
9	TM-9	TENTATIVE MAP (SHEET 7 OF 8)
10	TM-10	TENTATIVE MAP (SHEET 8 OF 8)
11	D-1	DETAILS AND SECTIONS
12	CS-1	CROSS SECTIONS (SHEET 1 OF 3)
13	CS-2	CROSS SECTIONS (SHEET 2 OF 3)
14	CS-3	CROSS SECTIONS (SHEET 3 OF 3)

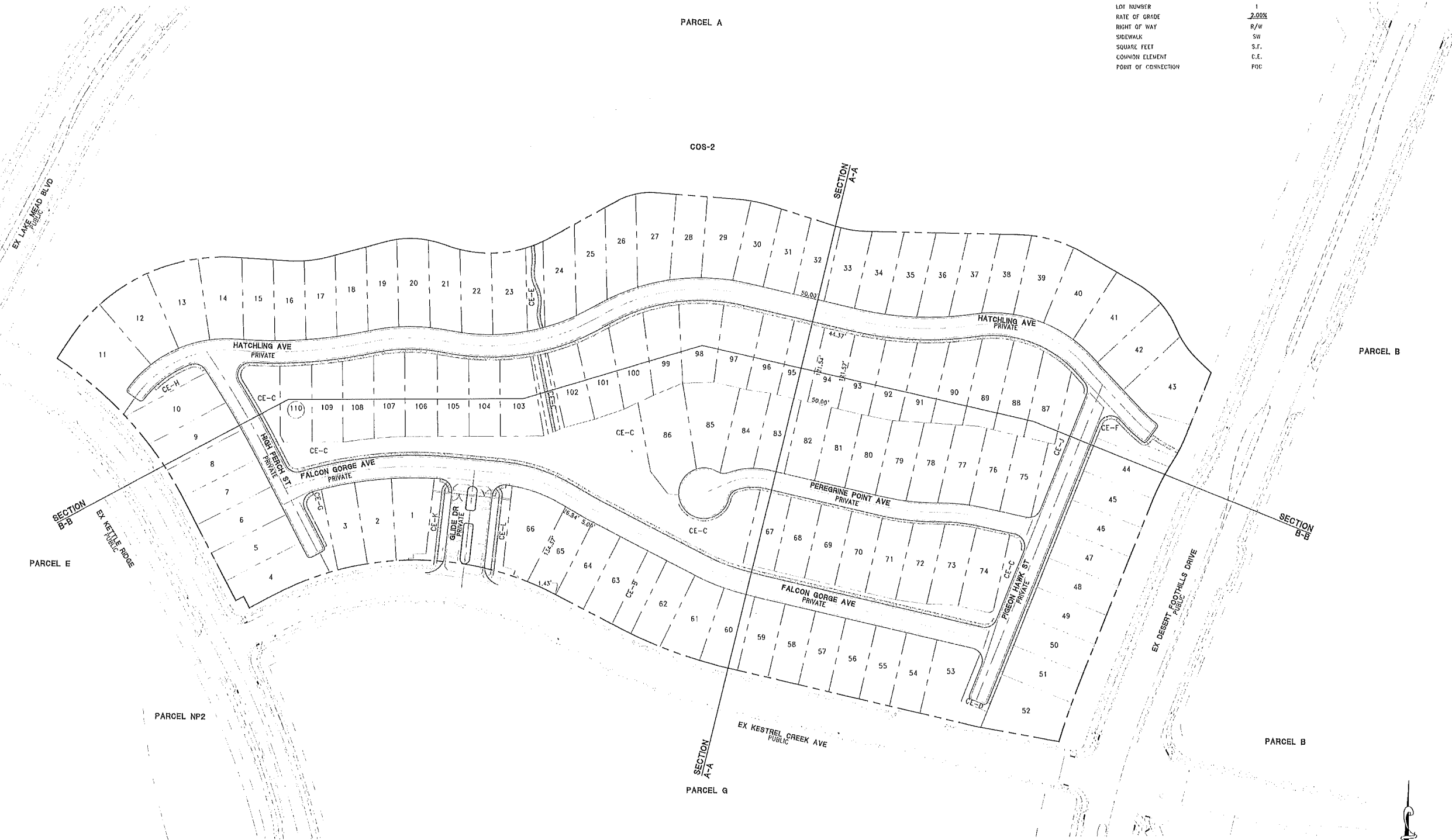
DATE: August 21, 2020
HORIZ. SCALE: N/A
VERT. SCALE: N/A
DRAWN BY: DJU
DESIGNED BY: MJD
CHECKED BY: CRZ
APPROVED BY: CRZ
PROJECT #: 4320.0010



FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
COVER SHEET



DATE: 8/21/20
DRAWING
TM-1
SHEET 1 OF 14

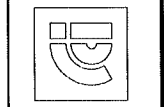


LEGEND

- RIGHT-OF-WAY
- CENTERLINE
- EASEMENT
- PROPOSED PUBLIC SEWER LINE
- EXISTING PUBLIC SEWER LINE
- PROPOSED SIDEWALK
- PROPOSED FIRE HYDRANT
- EXISTING STREET LIGHT
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- LOT NUMBER
- RATE OF GRADE
- RIGHT OF WAY
- SIDEWALK
- SQUARE FEET
- COMMON ELEMENT
- POINT OF CONNECTION

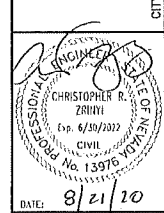
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APPROVED BY: CRZ
PROJECT #: 4370.0010

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 117, LAS VEGAS, NV 89106
PHONE: 702.453.0800 FAX: 702.453.0801

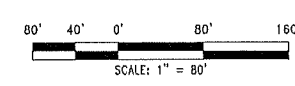


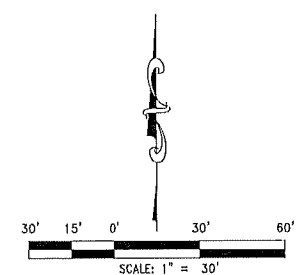
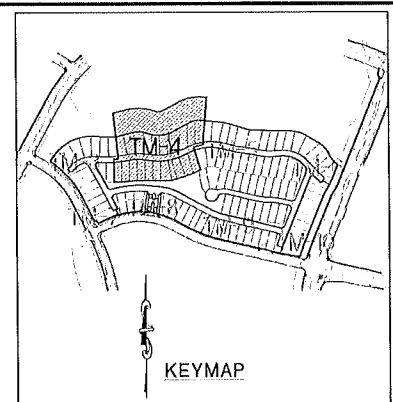
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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
OVERALL MAP



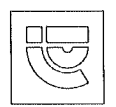
DATE: 8/21/20
DRAWING
TM-2
SHEET 2 OF 14





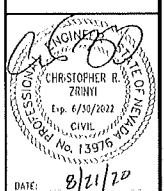
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DESIGNED BY: HAD
CHECKED BY: CFE
APPROVED BY: CFE
PROJECT # 4330.0010

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500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
MAIN: 702.453.0800 FAX: 702.453.0801



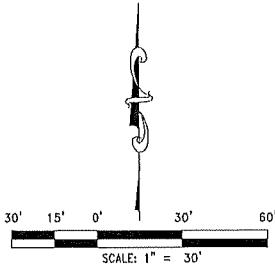
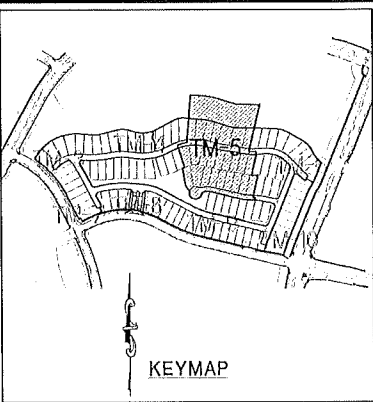
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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 2 OF 8)



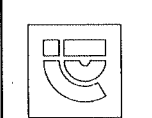
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DRAWING
TM-4
SHT 4 OF 14

CITY OF LAS VEGAS
Nevada
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DATE: AUGUST 21, 2020
HORIZ. SCALE: 1\"/>

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PHONE: 702.453.0800 FAX: 702.453.0801

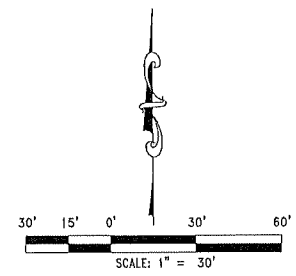
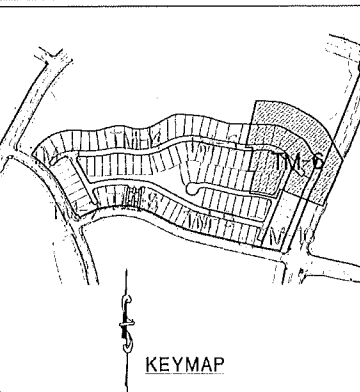


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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 3 OF 8)

CITY OF LAS VEGAS
8/21/20 12:25pm
DRAWING
TM-5
SHEET 5 OF 14

PROFESSIONAL SEAL
CHRISTOPHER R. ZIMM
CIVIL
No. 13976
DATE: 8/21/20



DATE: AUGUST 21, 2020
HORIZ. SCALE: 1\"/>

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500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PHONE: 702.453.0800 FAX: 702.453.0801
PROJECT #: 4320.0010

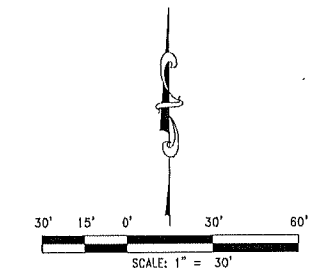
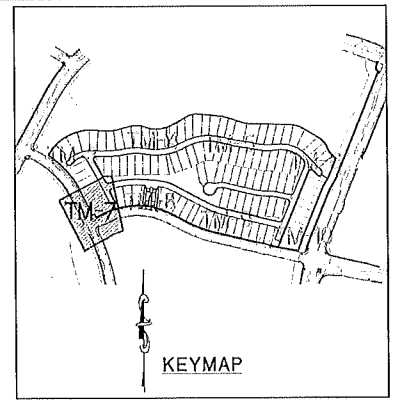
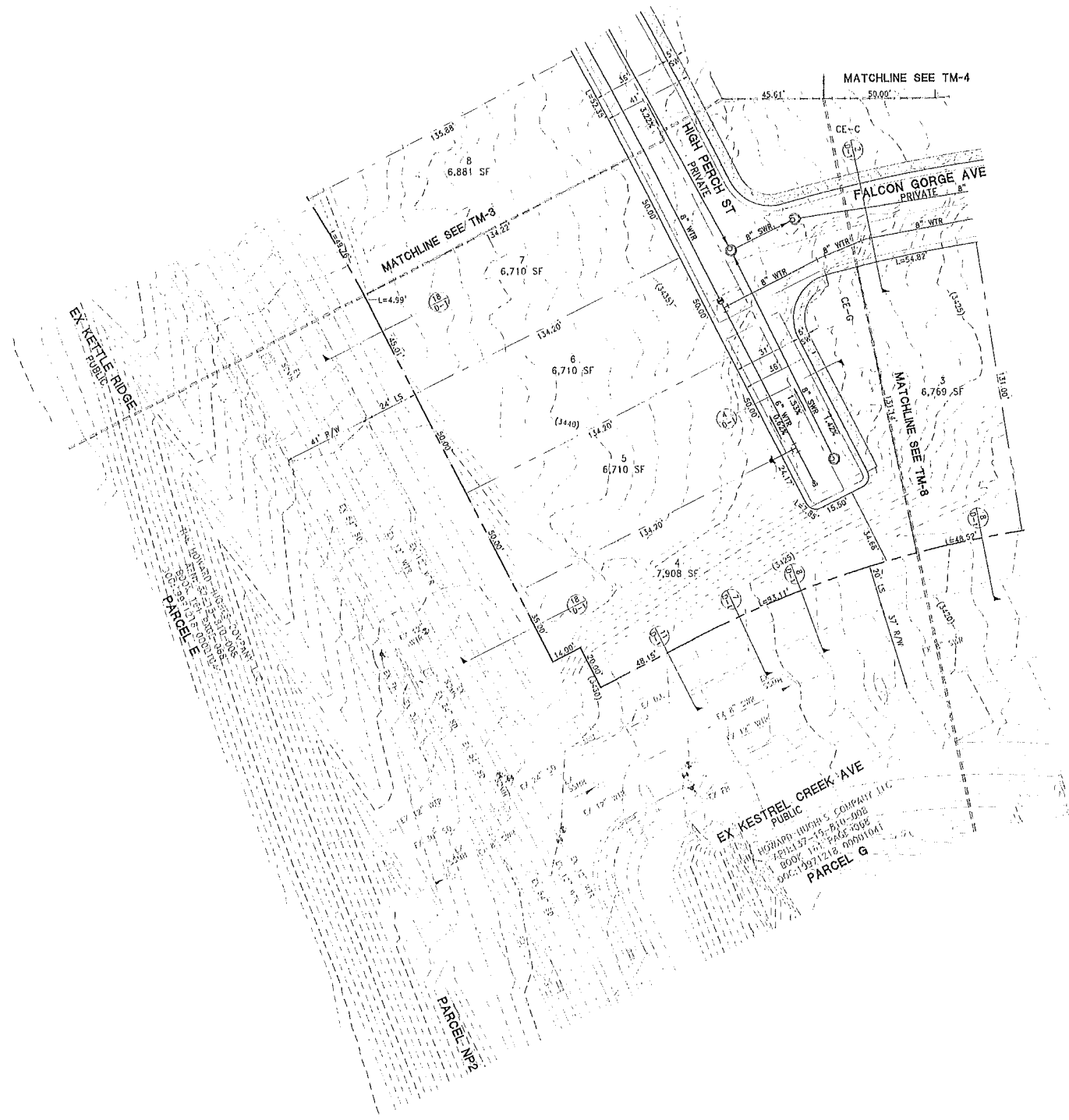
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BETTER BY DESIGN

FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 4 OF 8)

DATE: 8/21/20
DRAWING
TM-6
SHEET 6 OF 14

SHIT 6 OF 14

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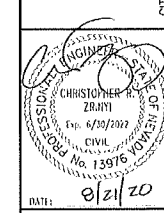


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DRAWN BY: N/A
DESIGNED BY: MJD
CHECKED BY: CHZ
APPROVED BY: CHZ
PROJECT #: 4320.0010

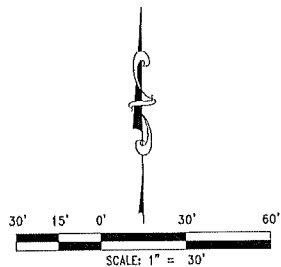
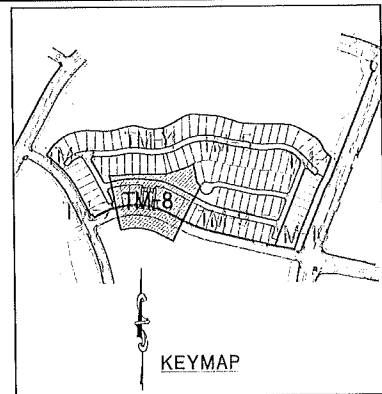
RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PHONE: 702.453.0800 FAX: 702.453.0801

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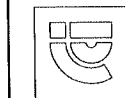
FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 5 OF 8)



DATE: 8/21/20
DRAWING:
TM-7
SHT 7 OF 14



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MAIN: 702.453.0900 FAX: 702.453.0001

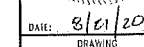


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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 6 OF 8)

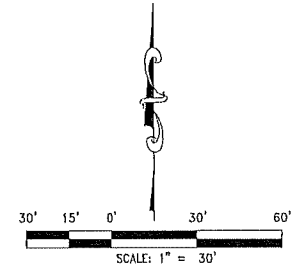
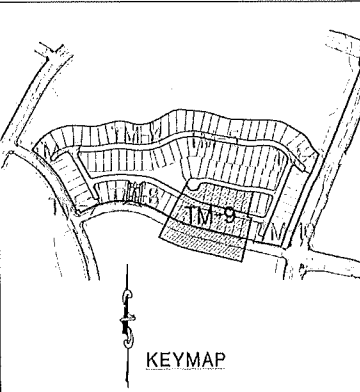
NEVADA

CITY OF LAS VEGAS



TM-8

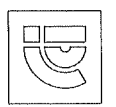
SHT 8 OF 14



THE HOWARD HUGHES COMPANY, LLC
ADDRESS: 15-B19 000
BOOK 161 PAGE 068
DOC:199/1218 000011041
PARCEL G

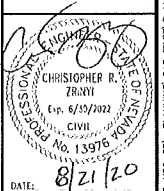
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CHECKED BY: MD
APPROVED BY: CPZ
PROJECT #: 4530.0010

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
MAIN: 702.453.0800 FAX: 702.453.0891

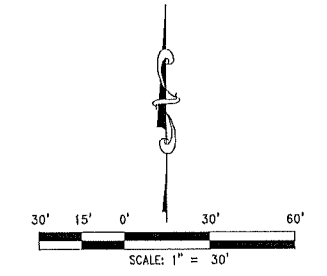
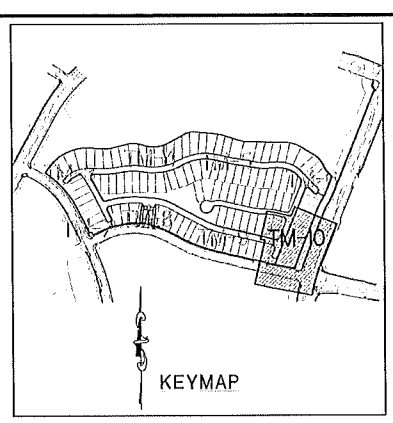


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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 7 OF 8)

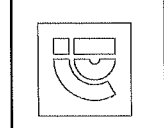


DATE: 8/21/20
DRAWING
TM-9
SHEET 9 OF 14



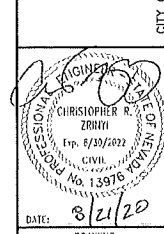
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PROJECT: SUMMERLIN V22 PARCELS C AND D
DRAWN BY: JLD
CHECKED BY: JLD
APPROVED BY: JLD
PROJECT # 4293030

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PHONE: 702.453.0800 FAX: 702.453.0801

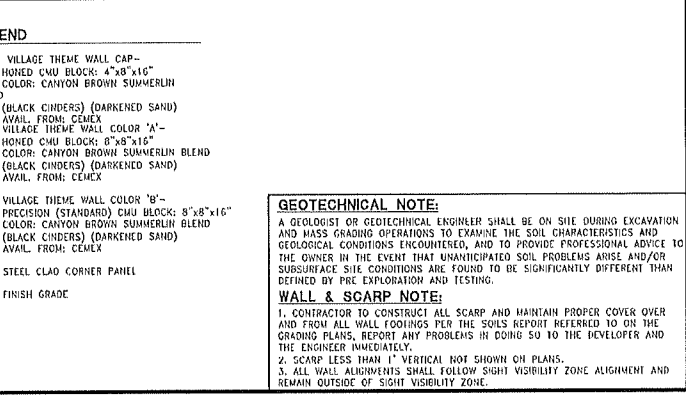
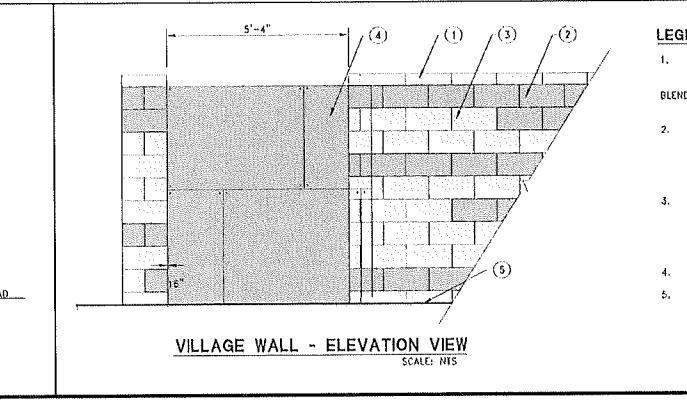
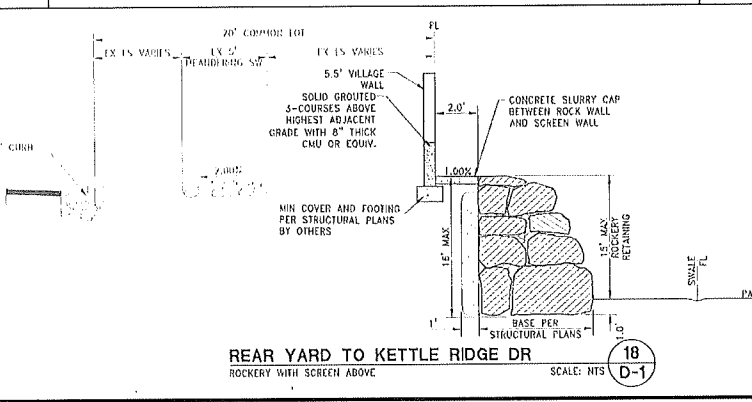
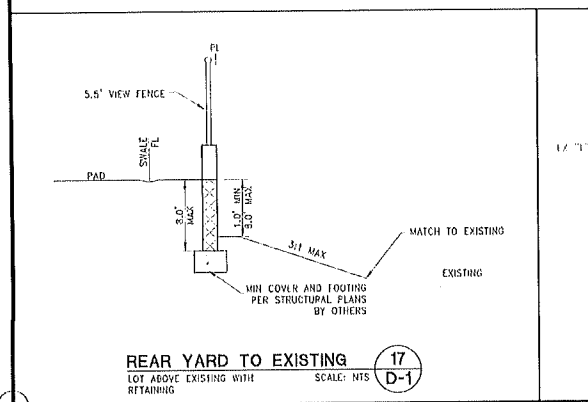
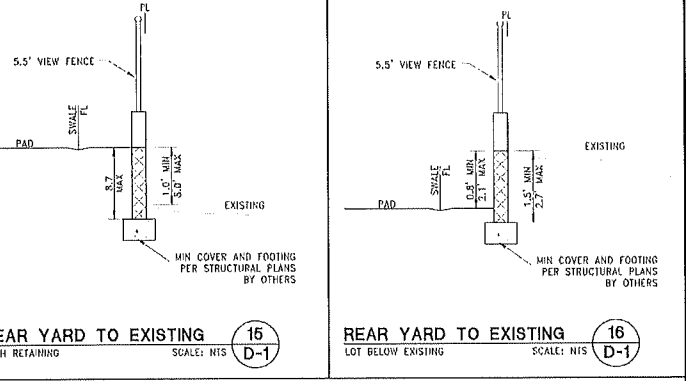
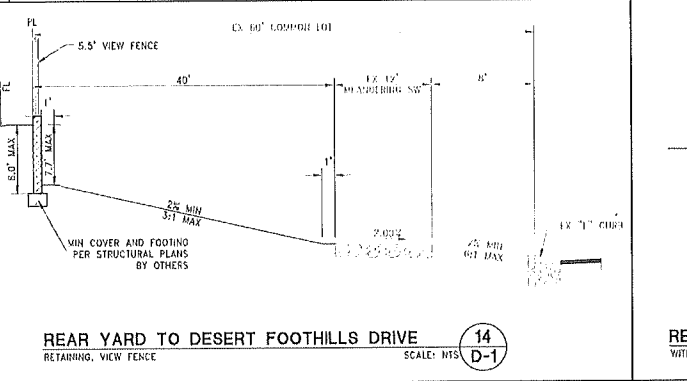
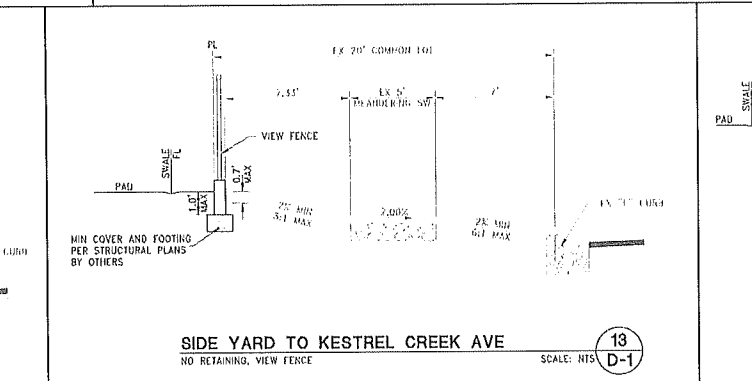
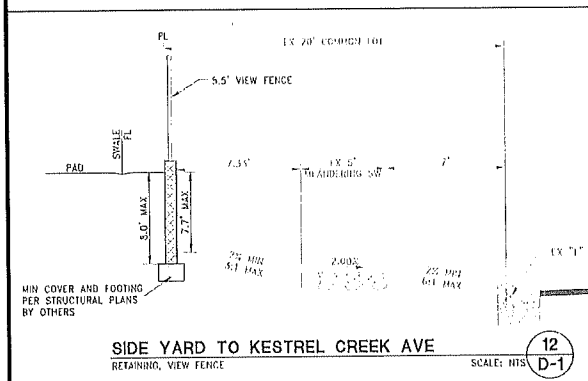
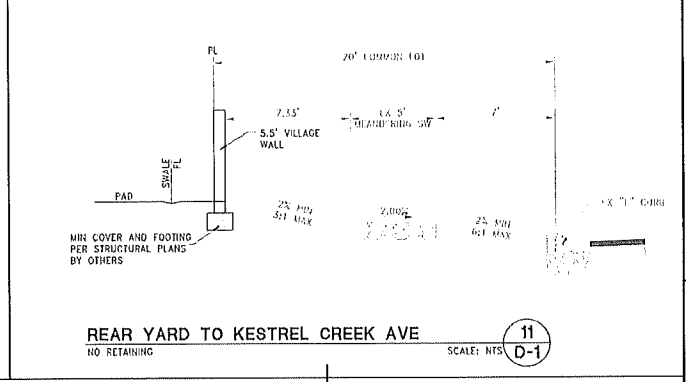
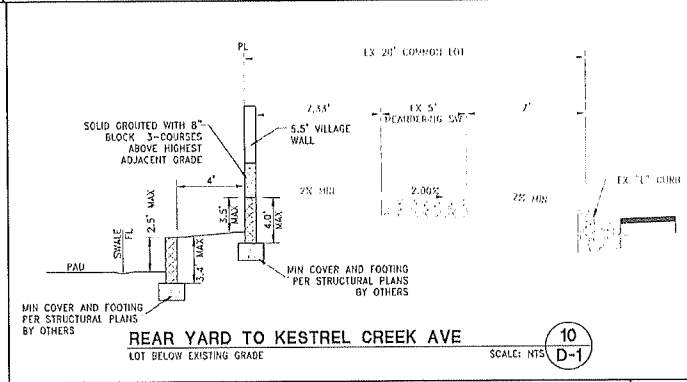
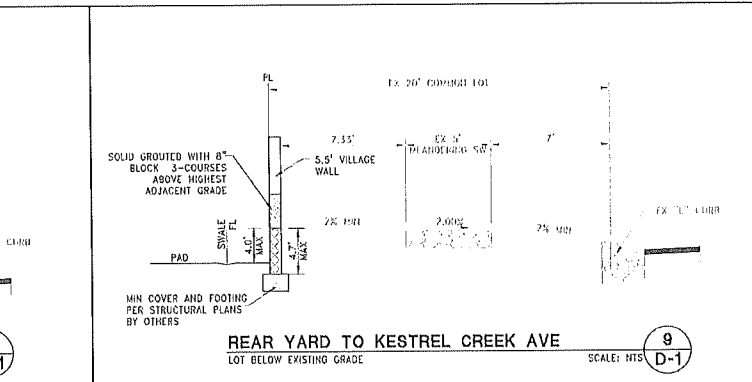
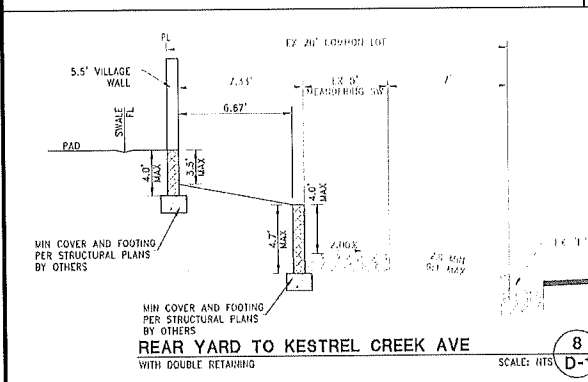
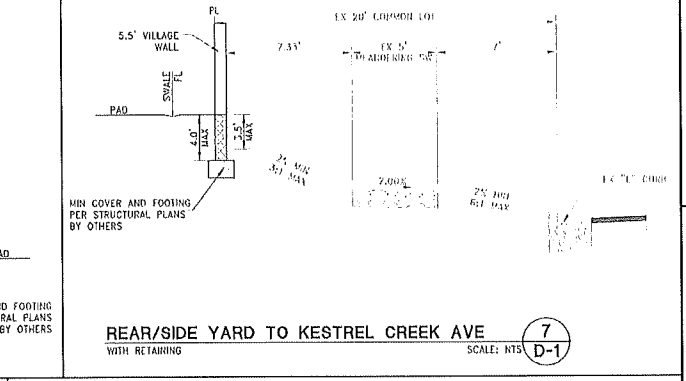
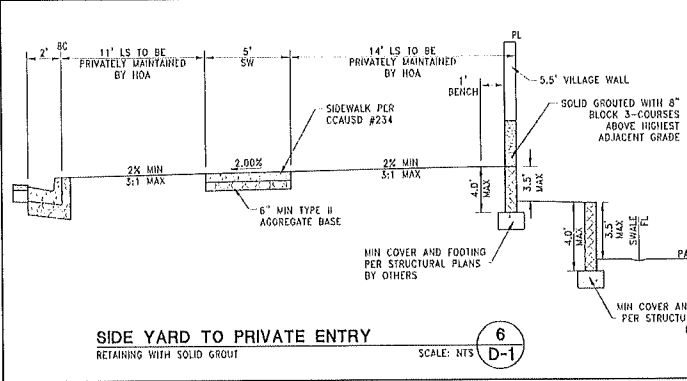
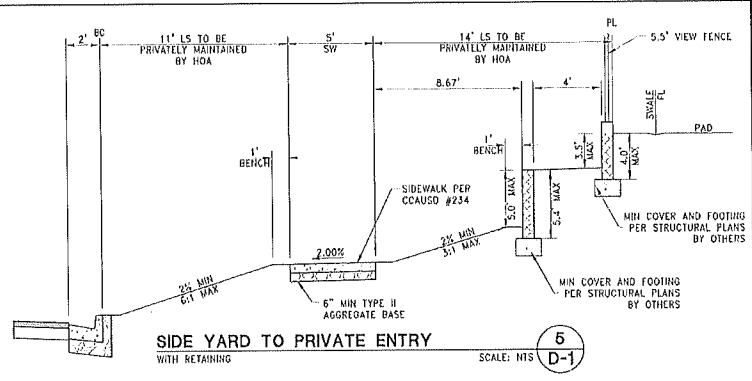
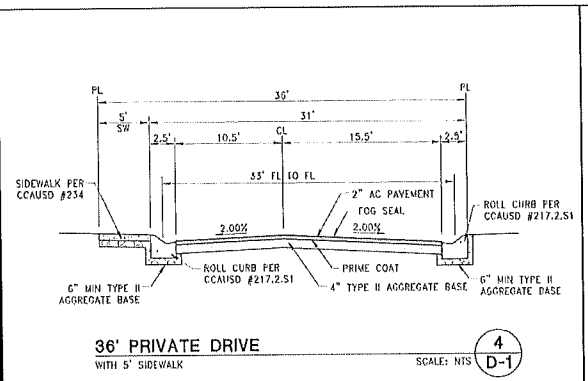
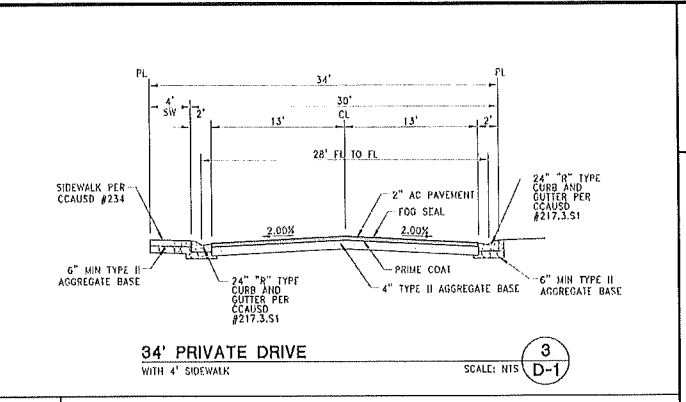
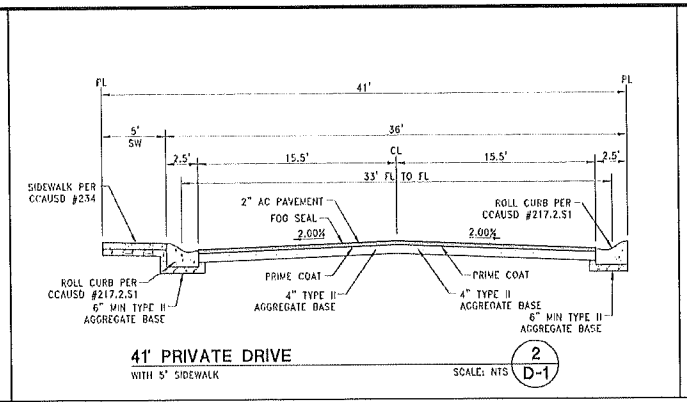
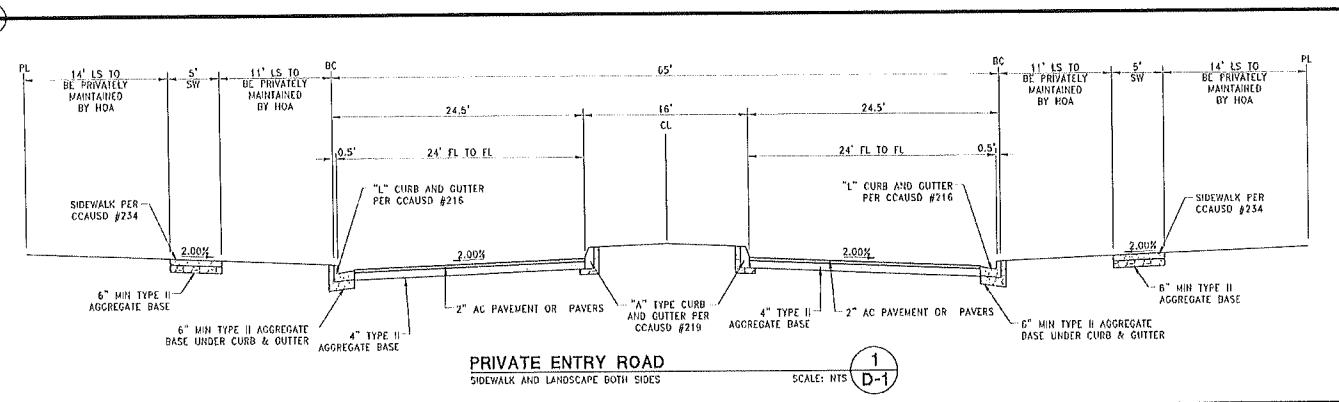


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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
(SHEET 8 OF 8)



DATE: 8/21/20
DRAWING
TM-10
SHEET 10 OF 14



DATE: August 21, 2020
PROJECT: 4350010
SHEET: 11 OF 14
D-1

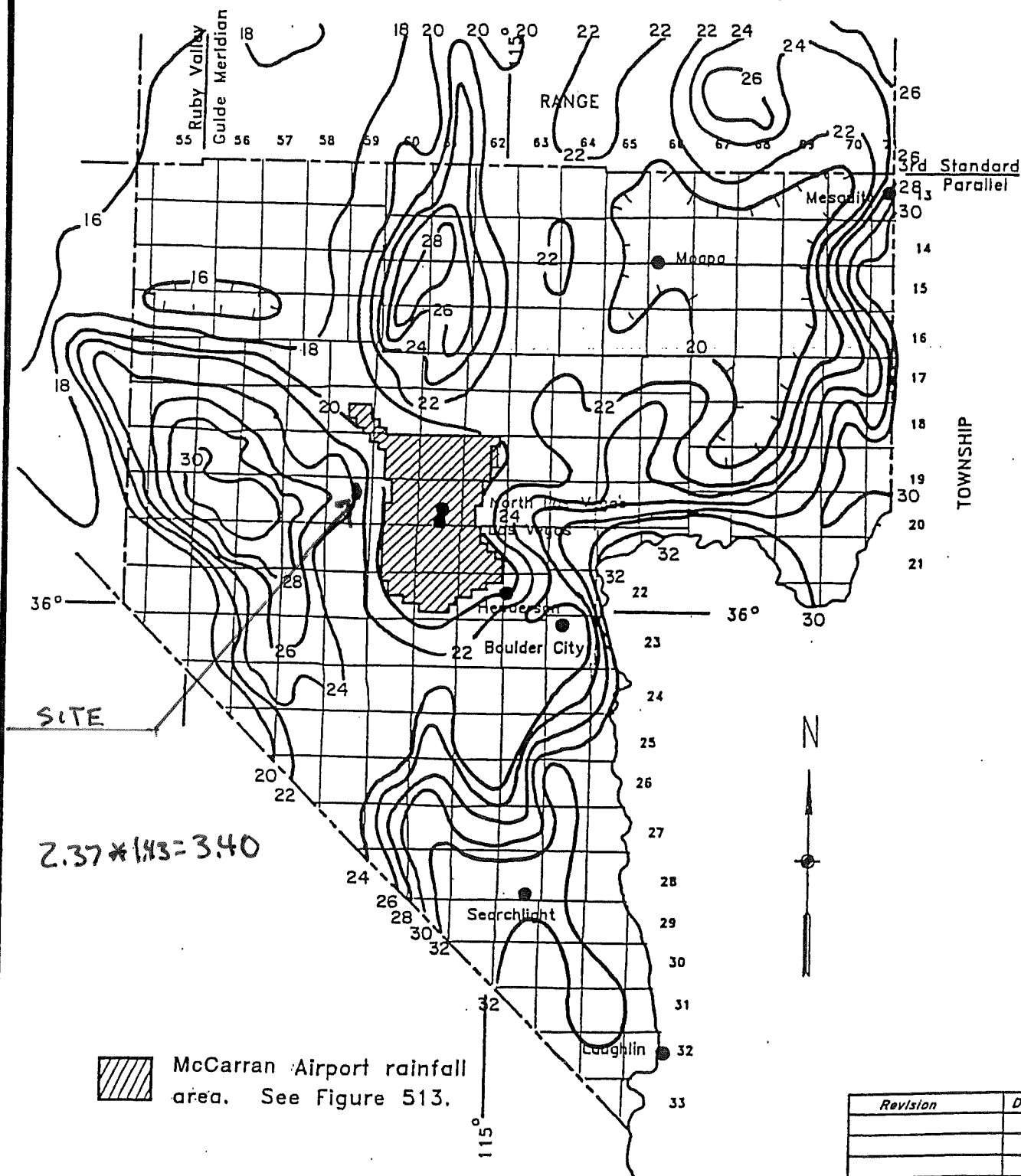
RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
MAIN: 702.653.0800 FAX: 702.653.0801

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FALCON CREST
SUMMERLIN V22 PARCELS C AND D
TENTATIVE MAP
DETAILS AND SECTIONS (SHEET 1 OF 2)
CITY OF LAS VEGAS
8/21/20

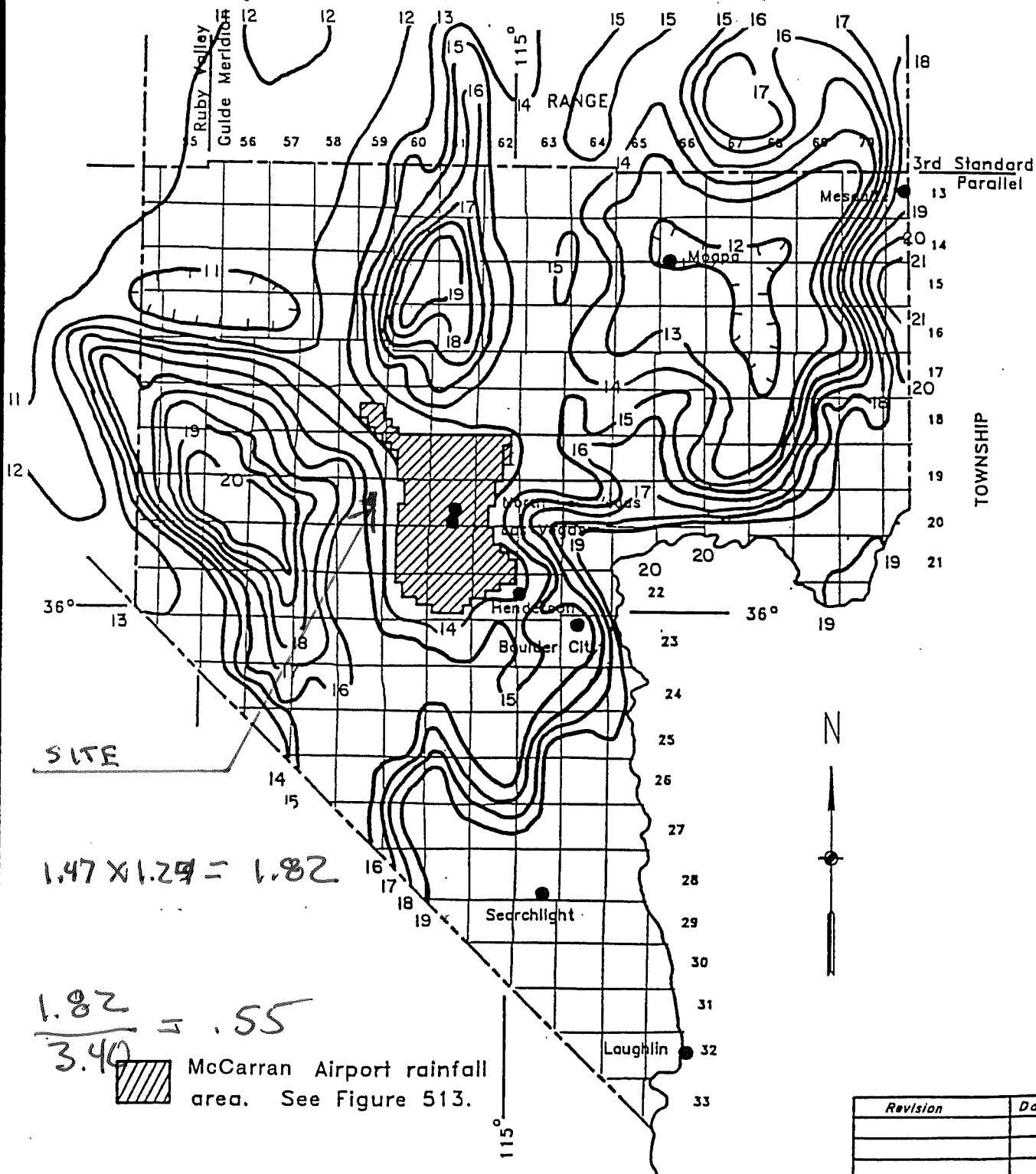
HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RAINFALL DEPTH-DURATION-FREQUENCY 100-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RAINFALL DEPTH-DURATION-FREQUENCY 10-YEAR, 6-HOUR (DEPTHS IN TENTHS OF INCHES)



Revision	Date

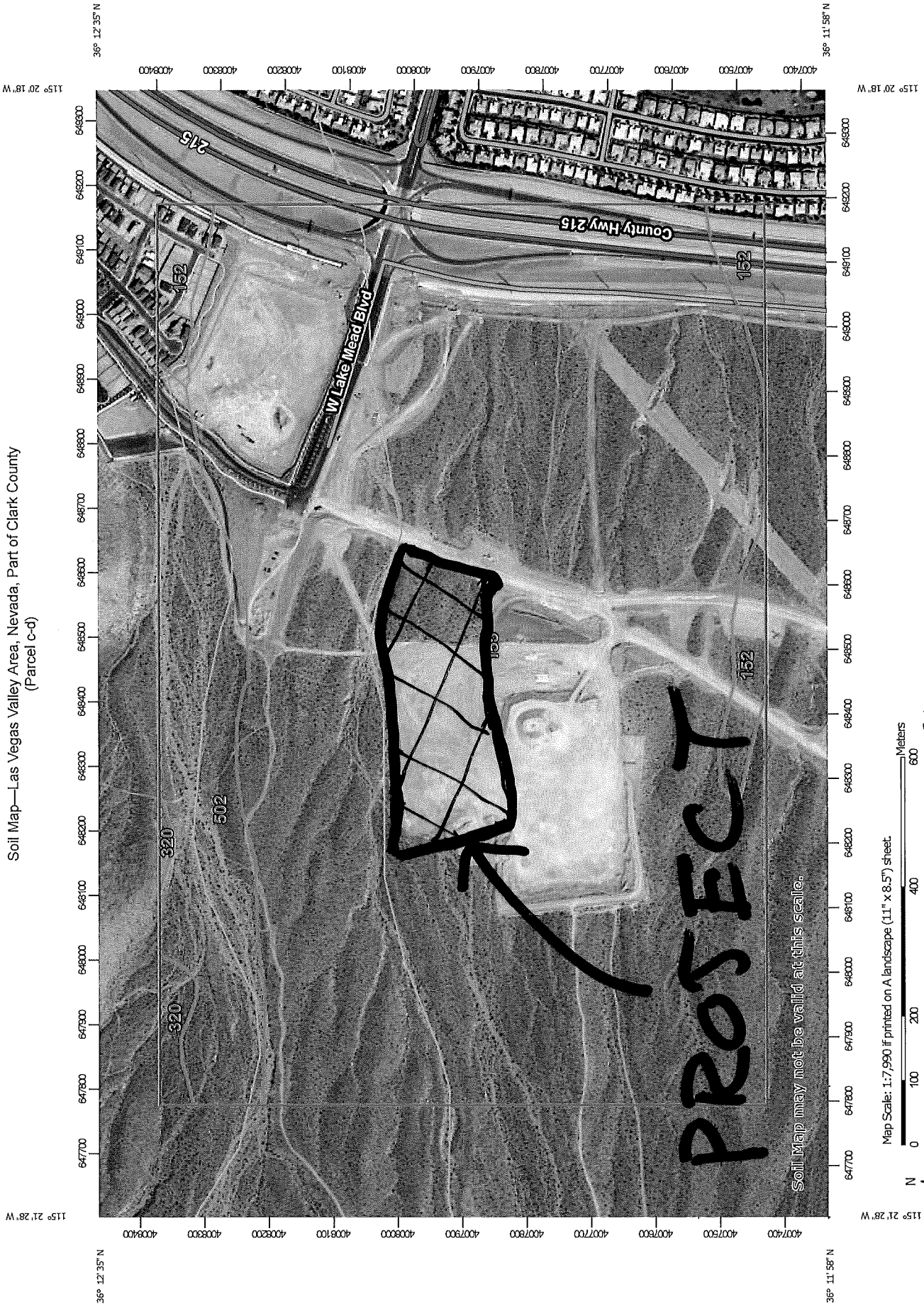
PRECIPITATION ADJUSTMENT RATIOS

<u>Recurrence Interval</u>	<u>Ratio to NOAA Atlas 2</u>
2-year	1.00
5-year	1.16
10-year	1.24
25-year	1.33
50-year	1.39
100-year	1.43

- NOTE: 1. Multiply the values obtained from the NOAA Atlas 2 by the above ratios to obtain the adjusted precipitation values.
2. NOAA Atlas 2 values for use with TR-55 shall not be adjusted by the above ratios.
3. Tables 505 and 506 require no adjustments.

<i>Revision</i>	<i>Date</i>

Soil Map—Las Vegas Valley Area, Nevada, Part of Clark County
(Parcel c-d)



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
152	Cave gravelly fine sandy loam, 0 to 4 percent slopes	12.2	3.7%
155	Cave gravelly fine sandy loam, 4 to 15 percent slopes	278.8	85.4%
320	Boxspring-Zeheme-Rock outcrop complex, 15 to 50 to percent slopes MLRA 30	3.0	0.9%
502	Canuto-Cave gravelly fine sandy loams, 2 to 8 percent slopes	32.3	9.9%
Totals for Area of Interest		326.3	100.0%

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk ^{1*} denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties—Las Vegas Valley Area, Nevada, Part of Clark County														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
152—Cave gravelly fine sandy loam, 0 to 4 percent slopes														
Cave	100	D	0-12	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	0-0-0	0-3-5	70-80-90	60-68-75	40-53-65	25-33-40	15-20-25	NP-3-5
			12-36	Indurated	—	—	—	—	—	—	—	—	—	—
			36-60	Gravelly loamy sand, very gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2	0-0-0	0-3-5	35-55-75	30-45-60	20-28-35	10-20-30	0-8-15	NP
155—Cave gravelly fine sandy loam, 4 to 15 percent slopes														
Cave	100	D	0-15	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	0-0-0	0-3-5	70-80-90	60-68-75	40-53-65	25-33-40	15-20-25	NP-3-5
			15-60	Indurated	—	—	—	—	—	—	—	—	—	—

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

RUNOFF CURVE NUMBERS (URBAN AREAS¹)

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area ²	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.): ³					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ⁴ ...		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
* Commercial and business	85	89	92	94	95 *
Industrial	72	81	88	91	93
Residential districts by average lot size:					

See Table 602A

Developing urban areas

* Newly graded areas (pervious areas only, no vegetation) ⁵	77	86	91	94 *
--	----	----	----	------

- 1 Average runoff condition, and $I_a = 0.2S$.
- 2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system. Impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using Figure 603.
- 3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
- 4 Composite CN's for natural desert landscaping should be computed using Figure 603 based on the impervious area percentage (CN #98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
- 5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using Figure 603 based on the degree of development impervious area percentage) and the CN's for the newly graded pervious areas.

Revision	Date

CN CALCULATIONS - ULTIMATE CONDITIONS

CN- COMMERCIAL				
Basin	% SOIL TYPE	HYDRO	%	WEIGHTED CN
ON1	100	A	89	0.0
		B	92	0.0
		C	94	0.0
		D	95	95.0
				95.0
Basin	% SOIL TYPE	HYDRO		WEIGHTED CN
ON2	100	A	89	0.0
		B	92	0.0
		C	94	0.0
		D	95	95.0
				95.0

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HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL																	
TIME OF CONCENTRATION																	
RCI ENGINEERING		SUMMERLIN VILLAGE 22 PARCELS C AND D				BY: RJR		DATE: 9/6/20									
		Ultimate Conditions															
DESIG:	DEV/JEX. (D or E)	SUB-BASIN DATA			INITIAL / OVERLAND TIME (Tt)			TRAVEL TIME (Tt)				Tc	Tc Check	Tag	REMARKS		
		CN	K	AREA Ac	AREA MI ²	INITIAL LENGTH Feet	SLOPE %	Ti Min	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS					V2 VELOCITY FPS	Tt Min
(1)			(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(13)		Tag= 0.6Tc/60 Hours	
ON1	D	95.0	0.8640	7.15	0.0112	142	5.6	2.8	1412	6.4	5.1	7.8	3.6	6.4	18.6	0.064	
ON2	D	95.0	0.8640	16.74	0.0262	150	2.7	3.8	1763	6.7	5.2	7.9	4.3	8.0	20.6	0.080	

Tc = Ti + Tt	Tag = 0.6 Tc	For the travel time (Tt) calculations,	Existing	V1 = 14.8*(S/100) ^{1/2}	Developed	V1 = 20.2*(S/100) ^{1/2}
Ti = 1.8 (1.1 - K) L ^{1/2} / S ^{1/3}		V1 applies to the first 500 feet of travel distance;				
K = 0.0132 (CN) - 0.39		V2 applies to the remaining travel distance.	Existing	V2 = 29.4*(S/100) ^{1/2}	Developed	V2 = 30.6*(S/100) ^{1/2}
Tc Check (Developed) = L/180+10			Minimum Tc (EX) = 10 Min per Section 602		Minimum Tc (DEV) = 5 Min per Section 602.1	

REFERENCE : STANDARD FORM 4


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 31JUL20 TIME 05:12:52
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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X X XXXXXXX XXXX X
X X X X X XX
X X X X X
XXXXXX XXXX X XXXX X
X X X X X
X X X X X
X X XXXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE, SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY, DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1

HEC-1 INPUT

PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

*DIAGRAM
1 ID VILLAGE 22 PARCEL C-D WOODSIDE
2 ID PROPOSED /ULTIMATE CONDITIONS
3 ID DESIGN STORM = 100-YEAR 6-HOUR STORM
4 ID STORM DISTRIBUTION = SDN3
5 ID
6 IT 5 0 0 300
7 IO 5 0 0
8 IN 5 0 0
9 JR PREC 1.00 0.55
*

10 KK ON1
11 KM SUBBASIN ON1
12 BA .0112
13 PB 3.40
14 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
15 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
16 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249
17 PC 0.251 0.256 0.270 0.278 0.281 0.283 0.295 0.322 0.352 0.409
18 PC 0.499 0.590 0.710 0.744 0.781 0.812 0.819 0.835 0.851 0.856
19 PC 0.860 0.868 0.876 0.888 0.910 0.926 0.937 0.950 0.970 0.976
20 PC 0.982 0.985 0.987 0.989 0.990 0.993 0.993 0.994 0.995 0.998
21 PC 0.998 0.999 1.000
22 LS 0 95
23 UD .064
*

24 KK ON2
25 KM SUBBASIN ON2
26 BA .0262
27 LS 0 95
28 UD .080
*
29 ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW

NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

10 ON1
.
.
24 ON2
.

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 31JUL20 TIME 05:12:52
*
*****

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*****
*
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* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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VILLAGE 22 PARCEL C-D WOODSIDE
PROPOSED /ULTIMATE CONDITIONS
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN3

```

7 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

IT        HYDROGRAPH TIME DATA
          NMIN       5  MINUTES IN COMPUTATION INTERVAL
          IDATE      1  0  STARTING DATE
          ITIME      0000 STARTING TIME
          NQ         300 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     2  0  ENDING DATE
          NDTIME     0055 ENDING TIME
          ICENT      19  CENTURY MARK

          COMPUTATION INTERVAL .08 HOURS
          TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW              CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE       DEGREES FAHRENHEIT

JP        MULTI-PLAN OPTION
          NPLAN      1  NUMBER OF PLANS

JR        MULTI-RATIO OPTION
          RATIOS OF PRECIPITATION
          1.00      .55
1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
          FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
          TIME TO PEAK IN HOURS

OPERATION  STATION  AREA  PLAN  RATIOS APPLIED TO PRECIPITATION
          RATIO 1  RATIO 2
          1.00    .55

HYDROGRAPH AT
+          ON1      .01   1  FLOW      29.    15.
          TIME      3.50   3.50

HYDROGRAPH AT
+          ON2      .03   1  FLOW      65.    33.
          TIME      3.50   3.50

*** NORMAL END OF HEC-1 ***

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CN CALCULATIONS - INTERIM CONDITIONS

				CN- COMMERCIAL		CN - NEWLY GRADED			
Basin	% SOIL TYPE	HYDRO		%		%		WEIGHTED CN	
INT1	100	A	40	89	60	63	0.0		
		B		92		77	0.0		
		C		94		85	0.0		
		D		95		88	90.8		
								90.8	
Basin	% SOIL TYPE	HYDRO						WEIGHTED CN	
INT2	100	A	75	89	25	63	0.0		
		B		92		77	0.0		
		C		94		85	0.0		
		D		95		88	93.3		
								93.3	

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL														
TIME OF CONCENTRATION														
RCI ENGINEERING		SUMMERLIN VILLAGE 22 PARCELS C AND D Interim Conditions										BY: RJR	DATE: 9/7/20	
SUB-BASIN DATA			INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)				Tc	Tc Check	Tlag	REMARKS	
DESIG:	DEV/JEX. (D or E)	CN	K	AREA Ac	AREA Mi ²	INITIAL LENGTH Feet	SLOPE %	Ti Min	TRAVEL LENGTH Feet	SLOPE %	V1 VELOCITY FPS	V2 VELOCITY FPS	Tt Min	
(1)			(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	
INT1	D	90.8	0.8086	7.15	0.0112	142	5.6	3.5	1412	6.4	5.1	7.8	3.6	0.071
INT2	D	93.3	0.8416	16.74	0.0262	150	2.7	4.1	1763	6.7	5.2	7.9	4.3	0.084

$T_c = T_i + T_t$ $T_i = 1.8 (1.1 - K) L^{1/2} / S^{1/3}$ $K = 0.0132 (CN) - 0.39$ $T_c \text{ Check (Developed)} = L/180 + 10$	$Tlag = 0.6 T_c$ $V1 = 14.8 * (S/100)^{1/2}$ $V2 = 29.4 * (S/100)^{1/2}$ $Tc \text{ Check (Developed)} = L/180 + 10$	$V1 = 20.2 * (S/100)^{1/2}$ $V2 = 30.6 * (S/100)^{1/2}$ $Minimum Tc (DEV) = 5 \text{ Min per Section 602.1}$
--	---	--

REFERENCE :

STANDARD FORM 4


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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 07SEP20 TIME 04:10:14
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****

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X X XXXXXX XXXX X
X X X X X XX
X X X X X
XXXXXX XXXX X XXXX X
X X X X X
X X X X X
X X XXXXXX XXXX XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIME- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE, SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

*DIAGRAM
1 ID VILLAGE 22 PARCEL C-D WOODSIDE
2 ID PROPOSED INTERIM CONDITIONS
3 ID DESIGN STORM = 100-YEAR 6-HOUR STORM
4 ID STORM DISTRIBUTION = SDN3
5 ID
6 IT 5 0 0 300
7 IO 5 0 0
8 IN 5 0 0
9 JR PREC 1.00 0.55
*

10 KK INT1
11 KM SUBBASIN INT1
12 BA .0112
13 PB 3.40
14 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
15 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
16 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249
17 PC 0.251 0.256 0.270 0.278 0.281 0.283 0.295 0.322 0.352 0.409
18 PC 0.499 0.590 0.710 0.744 0.781 0.812 0.819 0.835 0.851 0.856
19 PC 0.860 0.868 0.876 0.888 0.910 0.926 0.937 0.950 0.970 0.976
20 PC 0.982 0.985 0.987 0.989 0.990 0.993 0.993 0.994 0.995 0.998
21 PC 0.998 0.999 1.000
22 LS 0 90.8
23 UD .071
*

24 KK INT2
25 KM SUBBASIN INT2
26 BA .0262
27 LS 0 93.3
28 UD .084
*
ZZ

```

```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
NO. (.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

10 INT1
.
.
24 INT2
.

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JUN 1998
* VERSION 4.1
*
* RUN DATE 07SEP20 TIME 04:10:14
*
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
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```

VILLAGE 22 PARCEL C-D WOODSIDE
 PROPOSED INTERIM CONDITIONS
 DESIGN STORM = 100-YEAR 6-HOUR STORM
 STORM DISTRIBUTION = SDN3

```

7 IO      OUTPUT CONTROL VARIABLES
          IPRNT      5  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

IT        HYDROGRAPH TIME DATA
          NMIN        5  MINUTES IN COMPUTATION INTERVAL
          IDATE       1  0  STARTING DATE
          ITIME       0000 STARTING TIME
          NQ          300 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE      2  0  ENDING DATE
          NDTIME      0055 ENDING TIME
          ICENT       19  CENTURY MARK

          COMPUTATION INTERVAL .08 HOURS
          TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

JP        MULTI-PLAN OPTION
          NPLAN      1  NUMBER OF PLANS

JR        MULTI-RATIO OPTION
          RATIOS OF PRECIPITATION
          1.00      .55
1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
          FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
          TIME TO PEAK IN HOURS

OPERATION  STATION  AREA  PLAN  RATIOS APPLIED TO PRECIPITATION
          RATIO 1  RATIO 2
          1.00    .55

HYDROGRAPH AT
+          INT1     .01   1  FLOW      26.    12.
          TIME      3.50   3.50

HYDROGRAPH AT
+          INT2     .03   1  FLOW      62.    30.
          TIME      3.50   3.50

*** NORMAL END OF HEC-1 ***

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APPENDIX B – HYDRAULIC CALCS

100-Year Ultimate Condition

Flow Rate Hydraulic Street Cross Sections

Drop Inlet Calculations

Standard Form 6 Models w/Referenced Starting HGL Sheets

Emergency Overflow Calculations

D-Load Calculations

100-Year Interim Conditions

Flowmaster Hydraulic Normal Depth Calculations

Atkins Engineering E-Mail For Flows in Desert Foothills Drive

Q100 = 17 cfs from PR6

Worksheet for 41-Foot Section 1 100-year

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	7.9000 %
Discharge	17.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(0+95.00, 0.48)	0.013
(0+95.00, 0.48)	(1+00.00, 0.38)	0.013
(1+00.00, 0.38)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 0.38)	0.013
(1+36.00, 0.38)	(1+36.00, 1.00)	0.013

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.30 ft
Elevation Range	0.00 to 1.00 ft

Worksheet for 41-Foot Section 1 100-year

Results

Flow Area	2.4 ft ²
Wetted Perimeter	21.72 ft
Hydraulic Radius	0.11 ft
Top Width	21.56 ft
Normal Depth	0.30 ft
Critical Depth	0.45 ft
Critical Slope	0.4609 %
Velocity	7.17 ft/s
Velocity Head	0.80 ft
Specific Energy	1.10 ft
Froude Number	3.812
Flow Type	Supercritical

GVF Input Data

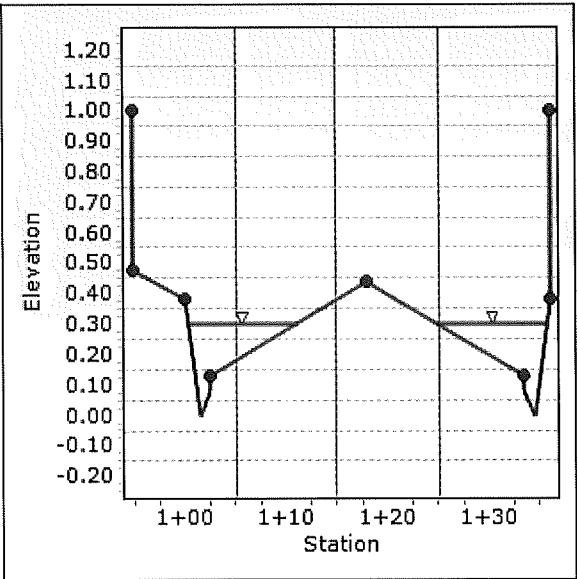
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.30 ft
Critical Depth	0.45 ft
Channel Slope	7.9000 %
Critical Slope	0.4609 %

Cross Section for 41-Foot Section 1 100-year

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	7.9000 %
Normal Depth	0.30 ft
Discharge	17.00 cfs



5 CFS BYPASS INLETS 1+2
+ 26 CFS (6.6 ACRES OF PRS)

Worksheet for 41-Foot Section 2 100-year

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Channel Slope	6.4900 %
Discharge	31.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(0+95.00, 0.48)	0.013
(0+95.00, 0.48)	(1+00.00, 0.38)	0.013
(1+00.00, 0.38)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 0.38)	0.013
(1+36.00, 0.38)	(1+36.00, 1.00)	0.013

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.37 ft
Elevation Range	0.00 to 1.00 ft

Worksheet for 41-Foot Section 2 100-year

Results

Flow Area	4.2 ft ²
Wetted Perimeter	29.41 ft
Hydraulic Radius	0.14 ft
Top Width	29.22 ft
Normal Depth	0.37 ft
Critical Depth	0.54 ft
Critical Slope	0.4553 %
Velocity	7.38 ft/s
Velocity Head	0.85 ft
Specific Energy	1.22 ft
Froude Number	3.433
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.37 ft
Critical Depth	0.54 ft
Channel Slope	6.4900 %
Critical Slope	0.4553 %

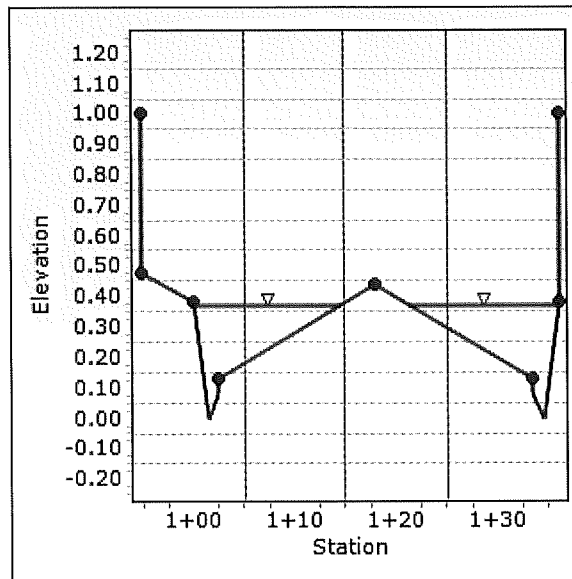
Cross Section for 41-Foot Section 2 100-year

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.4900 %
Normal Depth	0.37 ft
Discharge	31.00 cfs



11 cfs from PR3
+ 2 cfs bypass inlets S+6

Worksheet for 41-Foot Section 3 100-year

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	8.1200 %
Discharge	13.00 cfs

Section Definitions

Station	Station (ft)	Elevation (ft)	Roughness Coefficient
	0+95.00		1.00
	0+95.00		0.48
	1+00.00		0.38
	1+01.50		0.00
	1+02.50		0.08
	1+02.50		0.13
	1+18.00		0.44
	1+33.50		0.13
	1+33.50		0.08
	1+34.50		0.00
	1+36.00		0.38
	1+36.00		1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(0+95.00, 0.48)	0.013
(0+95.00, 0.48)	(1+00.00, 0.38)	0.013
(1+00.00, 0.38)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 0.38)	0.013
(1+36.00, 0.38)	(1+36.00, 1.00)	0.013

Options	
Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results	
Normal Depth	0.28 ft
Elevation Range	0.00 to 1.00 ft

Worksheet for 41-Foot Section 3 100-year

Results

Flow Area	2.0 ft ²
Wetted Perimeter	19.70 ft
Hydraulic Radius	0.10 ft
Top Width	19.53 ft
Normal Depth	0.28 ft
Critical Depth	0.42 ft
Critical Slope	0.5470 %
Velocity	6.57 ft/s
Velocity Head	0.67 ft
*Specific Energy	<u>0.95 ft</u>
Froude Number	3.636
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.28 ft
Critical Depth	0.42 ft
Channel Slope	8.1200 %
Critical Slope	0.5470 %

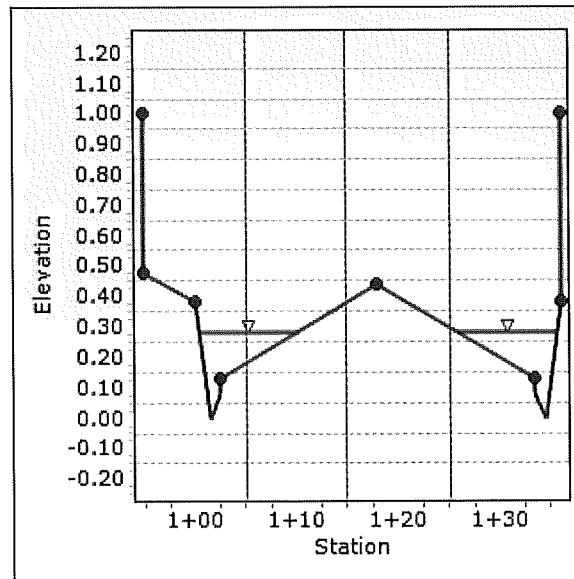
Cross Section for 41-Foot Section 3 100-year

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	8.1200 %
Normal Depth	0.28 ft
Discharge	13.00 cfs



"R" Curb

70%PR4=15CFS

Worksheet for 34-Foot Section 4 100-year

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Channel Slope	3.0000 %
Discharge	15.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+96.00	1.00
0+96.00	0.46
1+00.00	0.38
1+00.33	0.35
1+00.66	0.25
1+01.00	0.00
1+02.00	0.13
1+02.00	0.17
1+15.00	0.43
1+28.00	0.17
1+28.00	0.13
1+29.00	0.00
1+29.33	0.25
1+29.67	0.35
1+30.00	0.38
1+30.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+96.00, 1.00)	(1+02.00, 0.17)	0.013
(1+02.00, 0.17)	(1+15.00, 0.43)	0.016
(1+15.00, 0.43)	(1+28.00, 0.17)	0.016
(1+28.00, 0.17)	(1+30.00, 1.00)	0.013

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.39 ft
--------------	---------

Worksheet for 34-Foot Section 4 100-year

Results

Elevation Range	0.00 to 1.00 ft
Flow Area	3.4 ft ²
Wetted Perimeter	26.96 ft
Hydraulic Radius	0.12 ft
Top Width	26.65 ft
Normal Depth	0.39 ft
Critical Depth	0.48 ft
Critical Slope	0.5373 %
Velocity	4.47 ft/s
Velocity Head	0.31 ft
* Specific Energy	0.70 ft
Froude Number	2.223
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.39 ft
Critical Depth	0.48 ft
Channel Slope	3.0000 %
Critical Slope	0.5373 %

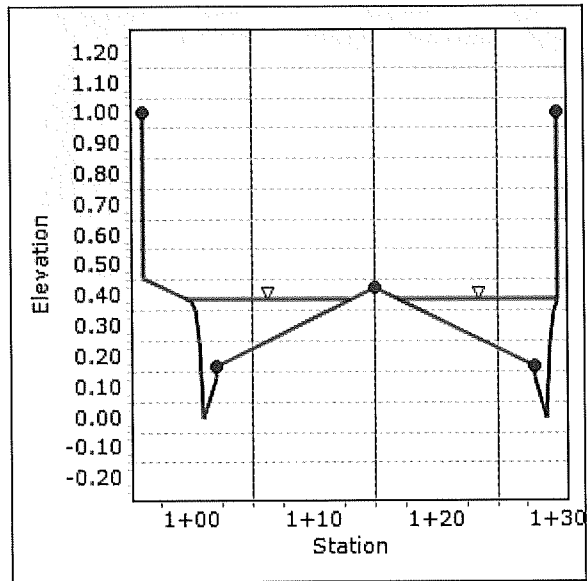
Cross Section for 34-Foot Section 4 100-year

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.0000 %
Normal Depth	0.39 ft
Discharge	15.00 cfs



ZZCFS BYPASS FLOW

1 CFS FROM 0.3 ACRES OF PRS

Worksheet for 41-Foot Section 5 100-year

Project Description	
Friction Method	Manning
Solve For	Formula
	Normal Depth
Input Data	
Channel Slope	4.5000 %
Discharge	23.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+95.00	1.00
0+95.00	0.48
1+00.00	0.38
1+01.50	0.00
1+02.50	0.08
1+02.50	0.13
1+18.00	0.44
1+33.50	0.13
1+33.50	0.08
1+34.50	0.00
1+36.00	0.38
1+36.00	1.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+95.00, 1.00)	(0+95.00, 0.48)	0.013
(0+95.00, 0.48)	(1+00.00, 0.38)	0.013
(1+00.00, 0.38)	(1+02.50, 0.13)	0.013
(1+02.50, 0.13)	(1+18.00, 0.44)	0.016
(1+18.00, 0.44)	(1+33.50, 0.13)	0.016
(1+33.50, 0.13)	(1+36.00, 0.38)	0.013
(1+36.00, 0.38)	(1+36.00, 1.00)	0.013

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.36 ft
Elevation Range	0.00 to 1.00 ft

Worksheet for 41-Foot Section 5 100-year

Results

Flow Area	3.8 ft ²
Wetted Perimeter	28.04 ft
Hydraulic Radius	0.14 ft
Top Width	27.86 ft
Normal Depth	0.36 ft
Critical Depth	0.50 ft
Critical Slope	0.4780 %
Velocity	6.00 ft/s
Velocity Head	0.56 ft
Specific Energy	0.92 ft
Froude Number	2.851
Flow Type	Supercritical

GVF Input Data

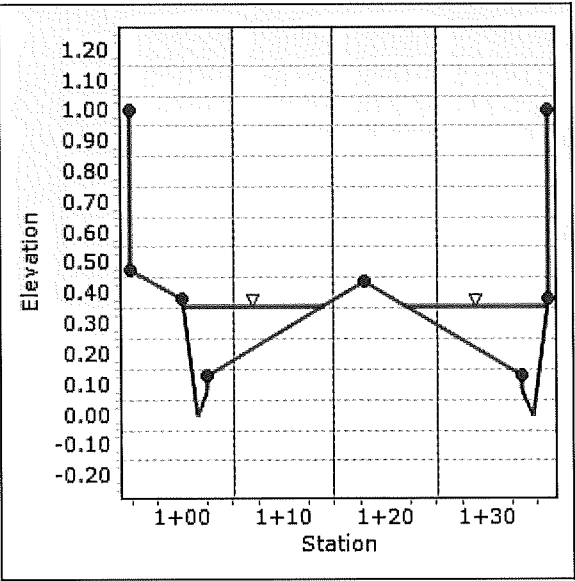
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.36 ft
Critical Depth	0.50 ft
Channel Slope	4.5000 %
Critical Slope	0.4780 %

Cross Section for 41-Foot Section 5 100-year

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	4.5000 %
Normal Depth	0.36 ft
Discharge	23.00 cfs



PRORATED BASIN PRG

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 1 AND 2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0790 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 10.6548 ft

Gutter Result Parameters

Design Flow: 8.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 1.1353 ft²

E_o (Gutter Flow to Total Flow): 0.4260

Gutter Depth at Curb: 2.5572 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 11.6670 ft

Length of Inlet: 13.3300 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 6.0039 cfs

Bypass Flow: 2.4961 cfs

Approach Velocity: 7.3266 ft/s

Splash-over Velocity: 49.1693 ft/s

Efficiency: 0.

Clogging Factor (50%)

Grate, $11.67 \times 1.5 = 17.5'$

Curb Opening $13.33 \times 1.5 = 20'$

Type "CM2" (7 Grates)

* Intercept 12 cfs

* Bypass 5 cfs

COMBINED INTERCEPTED AND BYPASS FLOWS

1/2 PROPORTED BASIN PRI

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLET 3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0637 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 10.5850 ft

Gutter Result Parameters

Design Flow: 7.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 1.1204 ft²

E_o (Gutter Flow to Total Flow): 0.4283

Gutter Depth at Curb: 2.5404 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 11.6670 ft

Length of Inlet: 13.3300 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 5.5615 cfs
Bypass Flow: 1.9385 cfs
Approach Velocity: 6.5317 ft/s
Splash-over Velocity: 49.1693 ft/s
Efficiency: 0.7415

Clogging Factor (50%)
Grate, $11.67 \times 1.5 = 17.5'$
Curb Opening $13.33 \times 1.5 = 20'$
Type "CM2" (7 Grates)
Intercept 6 cfs
Bypass 1.5 cfs

1/2 PROPORTIONED BASIN PRI

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLET 4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0637 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 10.5850 ft

Gutter Result Parameters

Design Flow: 7.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 1.1204 ft²

E_o (Gutter Flow to Total Flow): 0.4283

Gutter Depth at Curb: 2.5404 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 10.0000 ft

Length of Inlet: 11.6670 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 5.1697 cfs
Bypass Flow: 2.3303 cfs
Approach Velocity: 6.5313 ft/s
Splash-over Velocity: 33.2026 ft/s
Efficiency: 0.6893

Clogging Factor (50%)

Grate, $10 \times 1.5 = 15'$

Curb Opening $11.67 \times 1.5 = 17.5'$

Type "CM2" (6 Grates)

Intercept 5 cfs

Bypass 2.5 cfs

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 5 AND 6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0697 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 8.2222 ft

Gutter Result Parameters

Design Flow: 4.0000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 0.6760 ft²

E_o (Gutter Flow to Total Flow): 0.5249

Gutter Depth at Curb: 1.9733 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 8.3300 ft

Length of Inlet: 10.0000 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 2.8823 cfs

Bypass Flow: 1.1177 cfs

Approach Velocity: 5.7129 ft/s

Splash-over Velocity: 22.8833 ft/s

Efficiency: 0.7206

Clogging Factor (50%)

Grate, $8.33 \times 1.5 = 12.5'$

Curb Opening $10 \times 1.5 = 15'$

Type "CM2" (5 Grates)

✖ Intercept 5 cfs

✖ Bypass 2 cfs

COMBINED INLETS BYPASS + INTERCEPTED
FLOWS

$$\frac{1}{2} PR3 + \frac{1}{2} PR4 + 1 CFS BYPASS INLETS 5$$

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0469 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 15.4033 ft

Gutter Result Parameters

Design Flow: 17.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 2.3726 ft²

E_o (Gutter Flow to Total Flow): 0.3102

Gutter Depth at Curb: 3.6968 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 6.6700 ft

Length of Inlet: 8.8300 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 8.1563 cfs

Bypass Flow: 9.3437 cfs

Approach Velocity: 7.2231 ft/s

Splash-over Velocity: 16.7202 ft/s

Efficiency: 0.4661

Clogging Factor (50%)

Grate, $6.67 \times 1.5 = 10'$

Curb Opening $8.33 \times 1.5 = 12.5'$

Type "CM2" (4 Grates)

Intercept 8 cfs

Bypass 9.5 cfs

$\frac{1}{2}$ PR3 + $\frac{1}{2}$ PR4 + 1 CFS BYPASS INLET 6

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0469 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 15.4033 ft

Gutter Result Parameters

Design Flow: 17.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 2.3726 ft²

E_o (Gutter Flow to Total Flow): 0.3102

Gutter Depth at Curb: 3.6968 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 3.3300 ft

Length of Inlet: 5.0000 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 5.8053 cfs

Bypass Flow: 11.6947 cfs

Approach Velocity: 7.2581 ft/s

Splash-over Velocity: 10.4962 ft/s

Efficiency: 0.3317

Clogging Factor (50%)

Grate, $3.33 \times 1.5 = 5'$

Curb Opening $5 \times 1.5 = 7.5'$

Type "CM2" (2 Grates)

Intercept 6 cfs

Bypass 11.5 cfs

BYPASS FLOW = 21 CFS FROM INLETS 7+8

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 9 AND 10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0030 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Width of Spread: 21.2964 ft

Gutter Result Parameters

Design Flow: 10.5000 cfs

Gutter Depression: 0.0000 in

Area of Flow: 4.5354 ft²

E_o (Gutter Flow to Total Flow): 0.2315

Gutter Depth at Curb: 5.1111 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 11.6670 ft

Length of Inlet: 13.3300 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 9.7771 cfs

Bypass Flow: 0.7229 cfs

Approach Velocity: 2.2220 ft/s

Splash-over Velocity: 49.1693 ft/s

Efficiency: 0.9312

Clogging Factor (50%)

Grate, $11.67 \times 1.5 = 17.5'$

Curb Opening $13.33 \times 1.5 = 20'$

Type "CM2" (7 Grates)

* Intercept 20 cfs

* Bypass 1 cfs

TOTAL COMBINED INTERCEPTED + BYPASS
FLOWS

.95(PRS)=26 CFS + 5 CFS BYPASS INLETS 1+2

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Wednesday, June 10, 2020

Project Units: U.S. Customary Units

Notes:

Curb and Gutter Analysis: INLETS 11 AND 12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0649 ft/ft

Cross-Slope of Pavement: 0.0200 ft/ft

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 2.0000 ft

Design Flow: 15.5000 cfs

Gutter Result Parameters

Width of Spread: 13.8484 ft

Gutter Depression: 0.0000 in

Area of Flow: 1.9178 ft²

E_o (Gutter Flow to Total Flow): 0.3406

Gutter Depth at Curb: 3.3236 in

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Sweeper Combo

Grate Type: P - 1-7/8

Grate Width: 1.5000 ft

Grate Length: 3.3300 ft

Length of Inlet: 5.0000 ft

Local Depression: 4.0000 in

Inlet Result Parameters

Intercepted Flow: 5.3930 cfs

Bypass Flow: 10.1070 cfs

Approach Velocity: 7.9538 ft/s

Splash-over Velocity: 10.4962 ft/s

Efficiency: 0.3479

Clogging Factor (50%)

Grate, $3.33 \times 1.5 = 5'$

Curb Opening $5 \times 1.5 = 7.5'$

Type "CM2" (2 Grates)

*** Intercept 10 cfs**

*** Bypass 21 cfs**

COMBINED INTERCEPTED + BYPASS

WOODSIDE PARCEL CD
EXIST 4X12 NDOT CATCH BASIN

$Q =$	22.0 cfs	
$A = (W)(D)$	48.00 ft ²	
$W =$	48.0 in	4.0 ft
$D =$	144.0 in	12.0 ft
$A' = A(1-0.33)(0.50)$		
<i>0.33 = 33% Reduction for steel</i>		
<i>0.50 = 50% Clogging Factor</i>		
$A' =$	16.08 ft ²	
$L = 2W + 2D$	32.0 ft	
$* L' = W + 2D$		
<i>*Assume flow from 3 sides</i>		
$L' =$	28.0 ft	

<u>WEIR</u>		<u>ORIFICE</u>	
$Q = CL'H^{1.5}$		$Q = CA'(2gH)^{0.5}$	
$C =$	3	$C =$	0.65
$H =$	0.41	$H =$	0.07 ft

CONTROL = WEIR
PONDING DEPTH = 0.4 ft

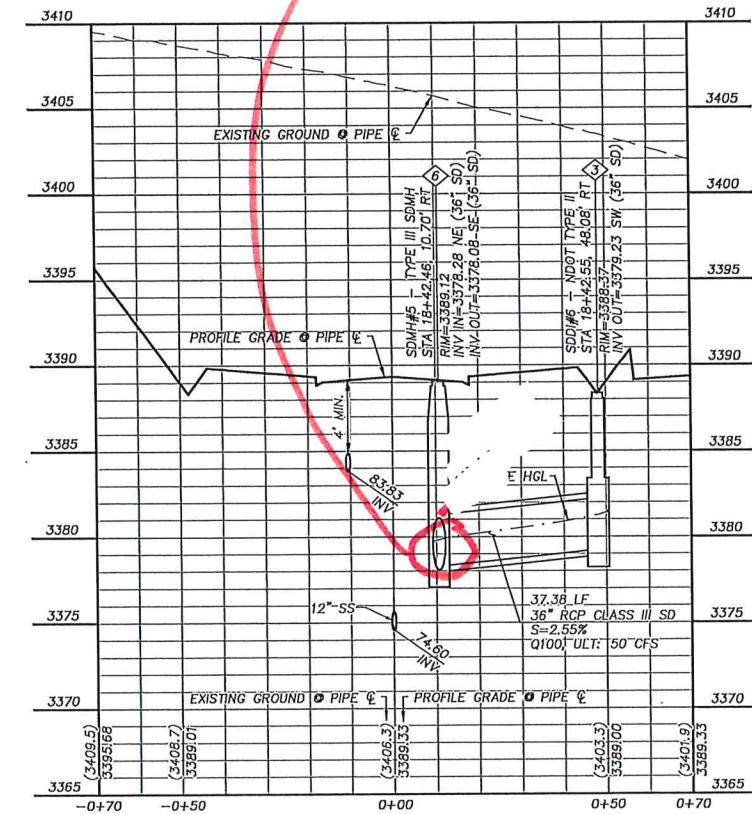
Storm Drain Hydraulics Calculations

STORM DRAIN MAINLINE TO KESTREL CREEK

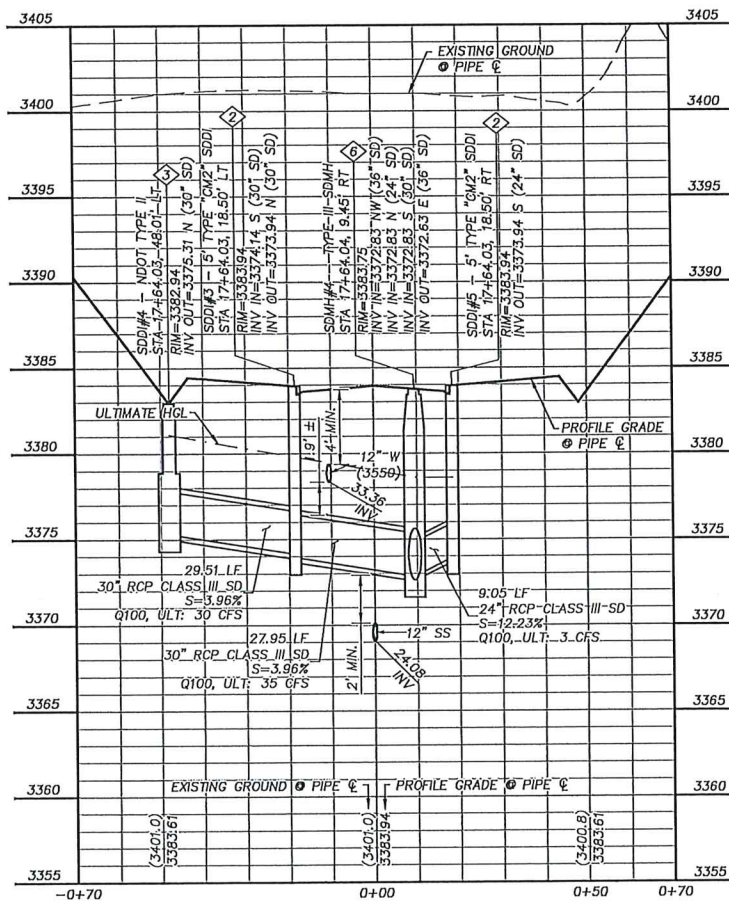
DATE: 10/26/20

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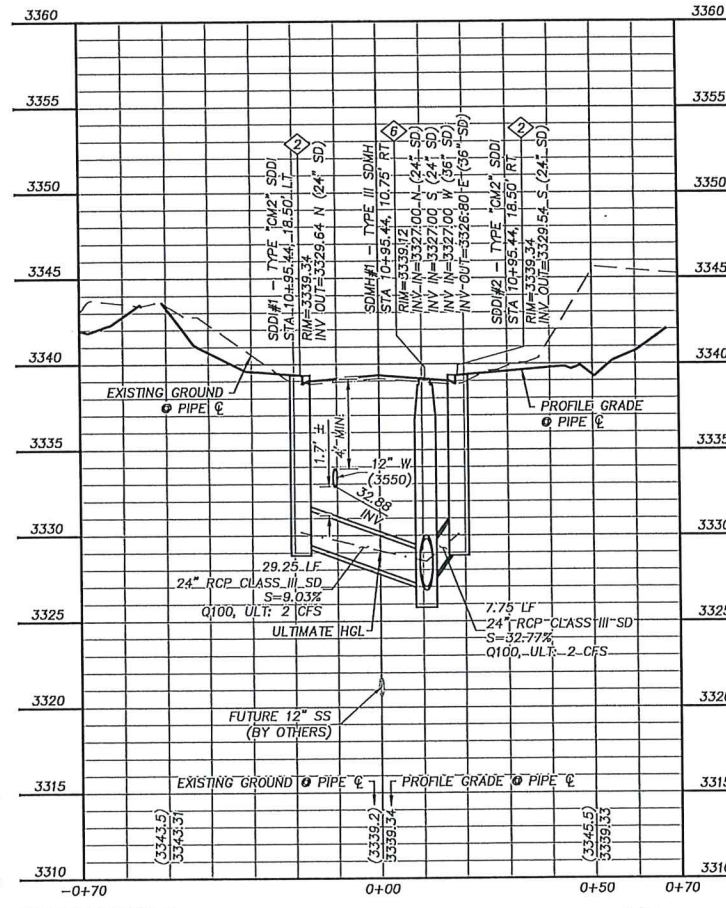
HGL is partial with SOLCS
STARTING HGL = 80.78
TOP OF PROPOSED 30" RCP



STORM DRAIN 1
"KCA" STA. 18+42 SEE SHEET 14



STORM DRAIN 2
"KCA" STA. 17+64 SEE SHEET 14



STORM DRAIN 3
"KCA" STA. 10+95 SEE SHEET 18

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 24)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. INSTALL TYPE "A" DROP INLET PER CCAUSD #411 & #421
8. REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
7. INSTALL 11.25" HORIZONTAL BEND PER UDACS PLATE #31
8. INSTALL COMBINATION AIR VALVE ASSEMBLY WITH ALL APPURTENANCES PER UDACS PLATE #38
9. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM 1')
10. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
11. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40

ROADWAY CONSTRUCTION NOTES

1. SAWCUT AND MATCH EXISTING
2. NOT USED
3. NOT USED
4. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
5. NOT USED
6. FUTURE SIDEWALK BY OTHERS
7. CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
8. CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
9. CONSTRUCT 0" FLUSH CURB
10. TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
11. NOT USED
12. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 24 FOR TYPICAL PAVEMENT SECTION.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



REV.	DESCRIPTION	DATE	APPROVAL

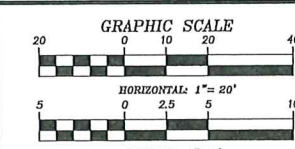
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89014
Tel: 702.263.7275
Fax: 702.263.7200

SUMMERLIN

SUMMERLIN VILLAGE 22
KESTREL CREEK AVENUE (STREET 1)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET 4)

DESIGNED BY: R. BATES
DRAWN BY: L. MANAGLAY
CHECKED BY: P. BATES
DATE: AUGUST, 2019
DRAWING NO.: 100000654
VERT: 1"=20'
HORIZ: 1"=50'

CLV 00-00000



BASIS OF BEARING
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING CONCURRENT WITH 114°50' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2009)
HAYWARD ELEVATION: 989.574 METERS (3,246.63 FEET)
FIND USGCS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S, R59E, S03

FAST
Call before you Dig
Underground
1-702-432-5300
877-432-5300

Call before you Dig
Underground
1-800-642-2444

CALL BEFORE YOU DIG
1-702-227-2828

Storm Drain Hydraulics Calculations

LATERAL FOR DROP INLET #4

DATE: 10/18/20

[illegible]

[illegible][illegible]

Storm Drain Hydraulics Calculations

LATERAL FOR DROP INLET #5

DATE: 10/18/20

[illegible]

100

DATE: 10/18/20

Date Printed 10/18/2020 STND FORM 6- lat di9

[illegible][illegible]

Storm Drain Hydraulics Calculations

LATERAL FOR DROP INLET #10

DATE: 10/18/20

[illegible]

Storm Drain Hydraulics Calculations

MAINLINE TO DESERT FOOTHILLS

DATE: 10/16/20

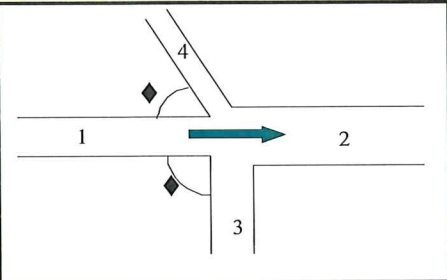
CONDUIT DATA										FLOW DATA								ENERGY LOSS DATA														EGL & HGL				COMMENTS													
																		TRANSITION																															
STATION			PIPE	BOX		IRREG		#	INVERT ELEV		L	S	A	Φ	Q	V	V2/2g	Sf	Ave. S _r	Frict	Frict	Manhole		Junction		Contraction/ Inlet			Expansion/Outlet		Bend				Misc		CONDUIT		TRANSITION		FULL/								
FROM (ft)	TO (ft)	T/R	D (in)	SPAN (ft)	RISE (ft)	AREA (ft²)	HYD RAD (ft)		D/S (ft)	U/S (ft)	(ft)	(%)	(ft²)		(cfs)	(ft/s)	(ft)	(ft/ft)	(ft/ft)	(ft)	(ft)	Θ (deg)	K _{mh}	H _{mh} (ft)	Θ (deg)	K _i	H _i (ft)	Inlet/ Cont	K _i	H _c (ft)	Θ (deg)	K _o	H _o (ft)	R _{bend} (ft)	Θ (deg)	K _b	H _b (ft)	H _m (ft)	Total (ft)	U/S EGL	U/S HGL	U/S EGL	U/S HGL	PART FLOW	CRTL				
	69.95		42							6.12																			Outlet K _o = 1.0													10.45	9.60						
69.95	97.50	R	42					1	6.12	10.95	27.6	17.51%	9.62	0.0049	71.0	7.38	0.85	0.0050	0.0050	0.14																										PART	D/S		
97.50	102.50	T	42					1	10.95	11.67	5.0	14.40%	9.62	0.0049	66.0	6.86	0.73	0.0043	0.0046		0.02	45	0.46	0.39	0																						FULL	D/S	
102.50	171.00	R	42					1	11.67	12.82	68.5	1.68%	9.62	0.0049	66.0	6.86	0.73	0.0043	0.0043	0.29																										PART	D/S		
171.00	176.00	T	30					1	12.82	13.00	5.0	3.70%	4.91	0.0049	44.0	8.96	1.25	0.0115	0.0079		0.04	6	0.05	0.04	0																						FULL	U/S	
176.00	222.77	R	30					1	13.00	16.39	46.8	7.24%	4.91	0.0049	44.0	8.96	1.25	0.0115	0.0115	0.54																										PART	D/S		
222.77	227.77	T	30					1	16.39	16.73	5.0	6.80%	4.91	0.0049	44.0	8.96	1.25	0.0115	0.0115		0.06	30	0.22	0.27																							FULL	D/S	
227.77	279.39	R	30					1	16.73	19.82	51.6	6.00%	4.91	0.0049	44.0	8.96	1.25	0.0115	0.0115	0.59																										PART	D/S		
279.39	284.39	T	24					1	19.82	20.15	5.0	6.60%	3.14	0.0049	34.0	10.82	1.82	0.0225	0.0170		0.08	90	1.33	1.66																							FULL	U/S	
284.39	342.27	R	24					1	20.15	24.30	57.9	7.16%	3.14	0.0049	34.0	10.82	1.82	0.0225	0.0225	1.30																										PART	D/S		
342.27	347.27	T	18					1	24.30	24.61	5.0	6.30%	1.77	0.0049	14.0	7.92	0.97	0.0177	0.0201		0.10	25	0.22	0.40																							FULL	U/S	
347.27	461.95	R	18					1	24.61	30.65	114.7	5.26%	1.77	0.0049	14.0	7.92	0.97	0.0177	0.0177	2.03																											PART	D/S	
461.95	466.95	T	18					1	30.65	30.83	5.0	3.66%	1.77	0.0049	8.0	4.53	0.32	0.0058	0.0117		0.06	68	0.85	0.83	45	0.50	0.82																				FULL	U/S	
466.95	491.52	R	18					1	30.83	31.10	24.6	1.11%	1.77	0.0049	8.0	4.53	0.32	0.0058	0.0058	0.14																											FULL	U/S	
491.52	491.52	T	18					1	31.10	31.10	0.0		1.77	0.0049	8.0	4.53	0.32	0.0058	0.0058		0.00							K _i =	0.4	0.13																		FULL	U/S
																				</																													

[illegible][illegible]

Junction Head Loss Calculation

Known

Diameter of Pipe 1 (in)	18.0
Diameter of Pipe 2 (in)	30.0
Diameter of Pipe 3 (in)	18.0
Diameter of Pipe 4 (in)*	18.0
Flow in Pipe 1 (cfs)	14
Flow in Pipe 2 (cfs)	34
Flow in Pipe 3 (cfs)	10
Flow in Pipe 4 (cfs)*	10
Angle of Pipe 3	48
Angle of Pipe 4*	67



*Optional

Headloss is applied at Entrance to Junction

Solve For

Area of Pipe 1 (ft ²)	1.77
Area of Pipe 2 (ft ²)	4.91
Area of Pipe 3 (ft ²)	1.77
Area of Pipe 4 (ft ²)	1.77

Insert Loss in Misc. Loss Column and
leave Junction Loss Column Blank

Head Loss at Junction (ft) 1.60

Equation Used:

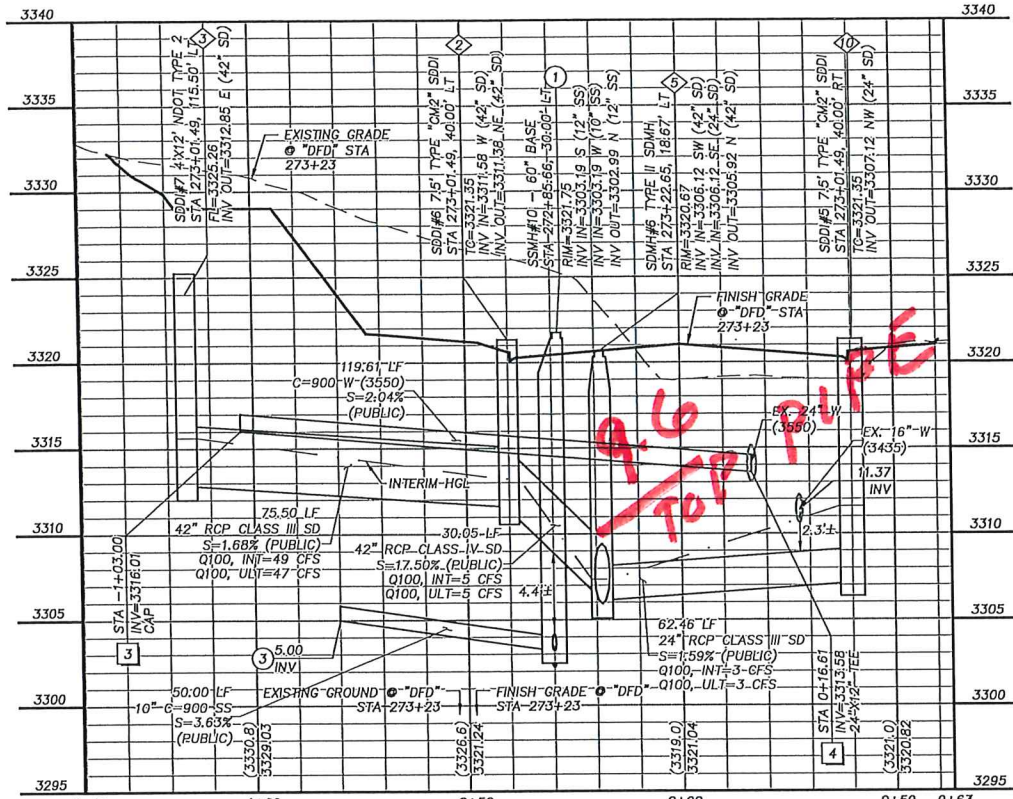
Incorporates Pressure plus Momentum Laws

$$H_j = ((Q_2^2/A_{2g} - Q_1^2/A_{1g} - Q_3^2 \cos(\text{Ang}3)/A_{3g} - Q_4^2 \cos(\text{Ang}4)/A_{4g}) * 2 / (A_1 + A_2) - D_1 + D_2)$$

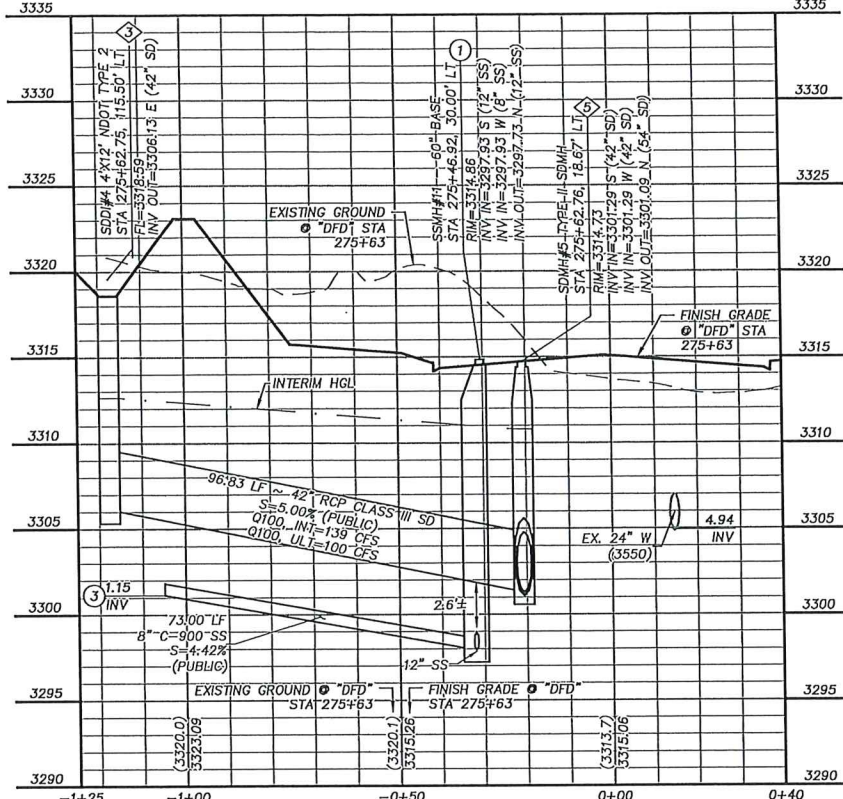
$$\begin{aligned} Q_2^2 / (A_2 * 32.2) &= 7.31 \\ Q_1^2 / (A_1 * 32.2) &= 3.44 \\ Q_3^2 * \cos(\text{ANG}3) / (A_3 * 32.2) &= 1.18 \\ Q_4^2 * \cos(\text{ANG}4) / (A_4 * 32.2) &= 0.69 \\ (2 / (A_1 + A_2)) &= 0.30 \\ (-D_1 / 12) + (D_2 / 12) &= 1.00 \end{aligned}$$

1.601119

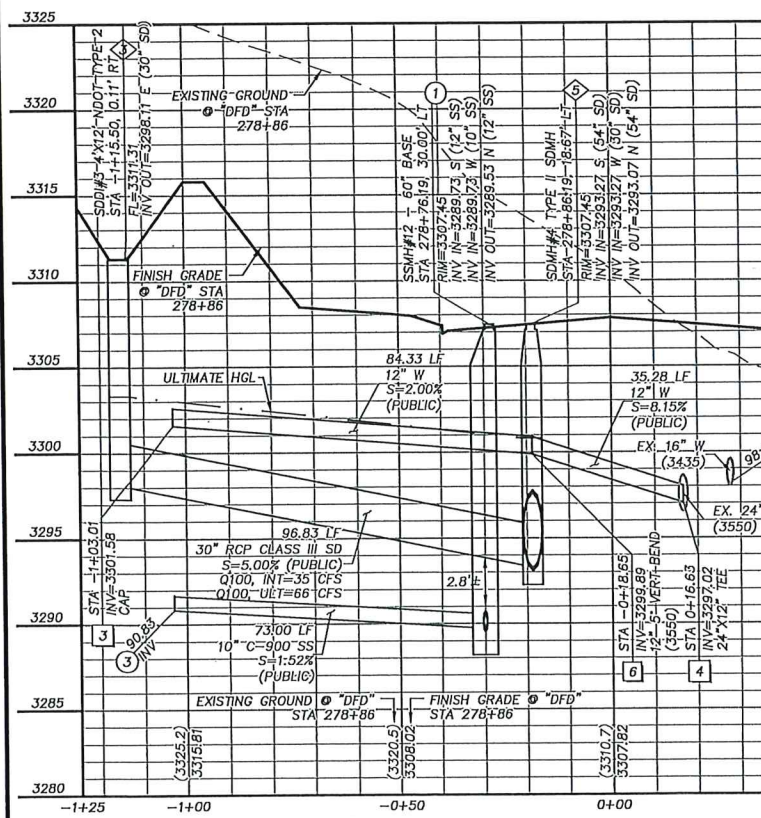
Note: This calculation only works properly when the storm drain is full. It may result in a negative result if Pipe 2 is partial flow.



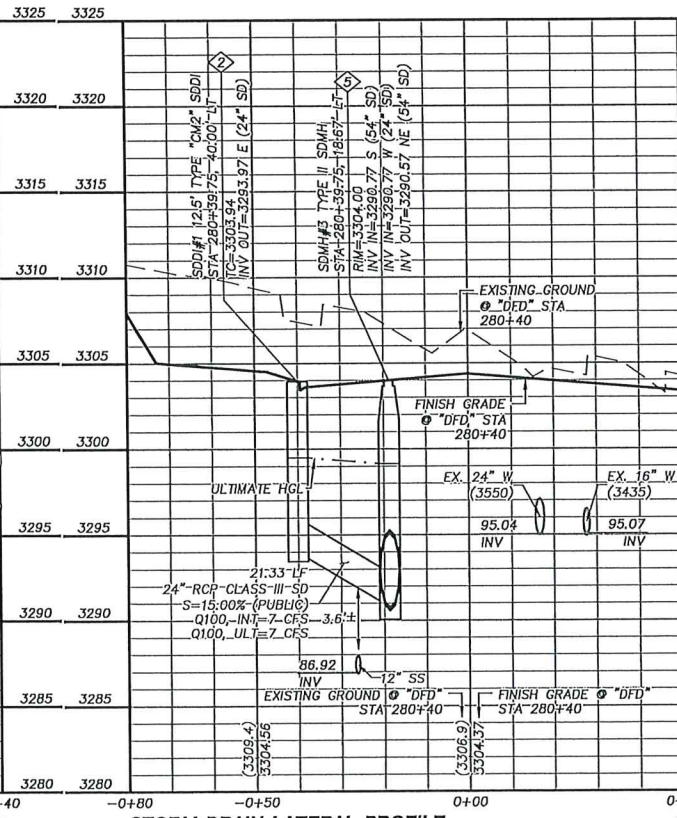
STORM DRAIN LATERAL PROFILE
"DFD" STA. 273+23 SEE SHEET 19



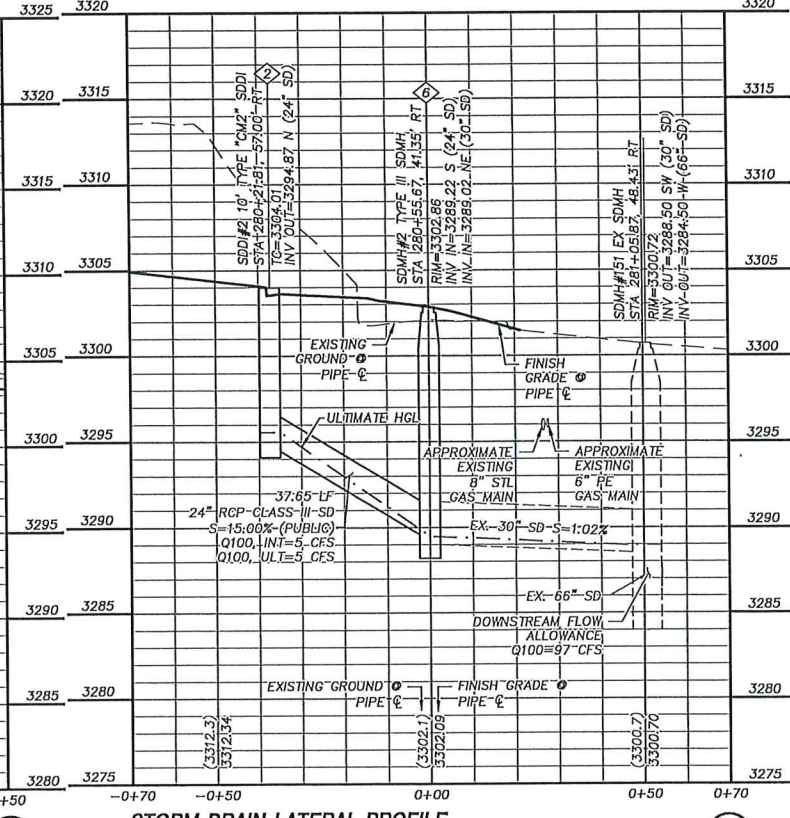
STORM DRAIN LATERAL PROFILE
"DFD" STA. 275+63 SEE SHEET 19



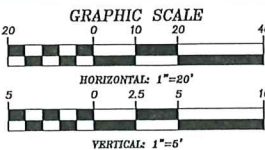
STORM DRAIN LATERAL PROFILE
"DFD" STA. 278+86 SEE SHEET 21



STORM DRAIN LATERAL PROFILE
"DFD" STA. 280+40 SEE SHEET 21



STORM DRAIN LATERAL PROFILE
"DFD" STA. 280+40 SEE SHEET 21



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136925 FIRST APPROVED DATE:

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.
DS#5155A

BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T215,R59E,S03



STORM DRAIN CONSTRUCTION NOTES

- INSTALL STORM DRAIN. SEE SHEET 30 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
- INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
- INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 30)
- INSTALL TYPE II SD MANHOLE PER CCAUSD #405
- INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
- INSTALL TYPE III SD MANHOLE PER CCAUSD #406
- REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
- STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 30
- INSTALL RIP-RAP (D50=8", THICKNESS=16")
- INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421 AND DETAIL D ON SHEET 30

SEWER CONSTRUCTION NOTES

- INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4
- INSTALL SEWER MAIN PER DCSWCS SD-17
- STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
- REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
- ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
- PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

- INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
- INSTALL 1.5" SERVICE SADDLE PER UDACS PLATE #4
- INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
- INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
- INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1')
- INSTALL 5" VERTICAL BEND PER UDACS PLATE #31
- INSTALL 22.5" HORIZONTAL BEND PER UDACS PLATE #31
- INSTALL 45" HORIZONTAL BEND PER UDACS PLATE #31
- REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
- INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40.

ROADWAY CONSTRUCTION NOTES

- SAWCUT AND MATCH EXISTING
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
- FUTURE SIDEWALK BY OTHERS
- CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
- CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
- CONSTRUCT "O" FLUSH CURB
- TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
- CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 3 FOR TYPICAL PAVEMENT SECTION.
- INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL B ON SHEET 33

NOTE: ALL WATERLINE LATERALS ARE CONNECTED TO THE 24" 3550 WATER MAIN.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



DESIGNED BY: N. BARCOS
DRAWN BY: CLAY
CHECKED BY: P. BATES
HORIZ: NONE
VERT: 1"=4'
JOB NO. 100060652
DATE: OCTOBER, 2019
DRAWING NO. 24/32
CLV 00-00000

SUMMERLIN VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
STORM DRAIN LATERAL PROFILES



ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1702.263.7275
Fax: +1702.263.7200

REV.	DESCRIPTION	DATE	APPROVAL

REVISIONS

Storm Drain Hydraulics Calculations

LATERAL FOR DROP INLET #8

DATE: 10/16/20

[illegible]

[illegible][illegible]

Storm Drain Hydraulics Calculations

LATERAL FOR DROP INLET #12

DATE: 10/16/20

[illegible]

Storm Drain Hydraulics Calculations

HATCHLING AVENUE STORM DRAIN

DATE: 10/16/20

[illegible]

[illegible]

BROAD CRESTED WEIR-EMERGENCY OVERFLOW

SUMMERLIN VILLAGE 21 PARCELS C AND D

Q₁₀₀ = 94 Design Flow

L = 30

ASSUME H₁ = 1.03 Weir Head

C (FOR H₁) = 3

Q_F = CL(H)^{3/2} 94.1 Free Flow

WEIR ELEVATION 2331.00 Overflow Easement

HEAD 1.03

WSE= 2332.0

LOTS 43 AND 44 FF ELEV 2333.7
1.7

DLOADS

USE

Bedding Factor Other 1.9

Wall thickness B

Soil DENSITY 140

Live Load HS series 20

Soil Type 0.165 Sand & Gravel.

design data 7

american
Concrete
Pipe
association

CONCRETE PIPE SELECTION: Trench Installations

Trench conduits are usually installed in relatively narrow trenches excavated in undisturbed soil and back-filled to the original ground surface.

When a rigid conduit is installed in a narrow trench and backfilled, the backfill material will tend to settle. This downward movement generates frictional forces along the trench walls, which act upward to help support the weight of the backfill material. The magnitude of the frictional forces depends on the unit weight of the backfill material w , the value of Rankine's lateral pressure ratio K , and the coefficient of sliding friction μ' between the backfill material and the trench walls.

The backfill load on a conduit installed in a trench condition is equal to the weight of the mass of fill material within the trench less the summation of the frictional load transfers, and is expressed by the equation:

$$W_d = C_d w B_d$$

where

W_d = backfill load, pounds per linear foot

C_d = load coefficient for trench condition

w = unit weight of backfill material, pounds per cubic foot

B_d = width of trench at the top of the conduit, feet

Figures 2 through 5, based on the above equation, enable a direct determination of backfill load for a given trench width and depth of cover. As the trench width increases for a given depth of cover and pipe diameter, a point is reached at which an embankment condition develops. The curves showing pipe size indicate the limiting trench width for each pipe diameter beyond which greater trench widths will not affect the load. When this condition occurs, the load on the conduit remains constant. This load should be determined by the intersection of the vertical line representing the depth of cover and the dashed line representing the particular pipe diameter under consideration. For intermediate pipe sizes not shown in Figures 2 through 5, interpolation should be used.

The field supporting strength of a concrete pipe line is dependent on the inherent strength of the pipe, the type of foundation on which the pipe is installed and the compaction of the sidefill material adjacent to the pipe. A common method used to determine the inherent strength of a pipe is the three-edge bearing test, in which the pipe is subjected to concentrated loads at the crown and invert. The load that a pipe will support under this condition of loading is called the *three-edge bearing strength* and is expressed in pounds per linear foot.

ASTM Specification C14 covers three strength classes for non-reinforced concrete pipe — Class 1, 2 and 3. These three classes are specified to meet ultimate loads, expressed in terms of minimum strength in three-edge-bearing as listed in *Table I*.

TABLE I: Strength Requirements Non-reinforced Concrete Pipe ASTM C14

Pipe Diameter, Inches	Minimum Three-Edge Bearing Strengths, Pounds per Linear Foot		
	Class 1	Class 2	Class 3
4	1500	2000	2400
6	1500	2000	2400
8	1500	2000	2400
10	1600	2000	2400
12	1800	2250	2600
15	2000	2600	2900
18	2200	3000	3300
21	2400	3300	3850
24	2600	3600	4400
27	2800	3950	4600
30	3000	4300	4750
33	3150	4400	4875
36	3300	4500	5000

Another means of expressing pipe strength is in terms of D-load. The D-load of a pipe is the supporting strength of a pipe loaded under three-edge-bearing test conditions expressed in pounds per linear foot per foot of inside diameter. Thus the bearing strength may be converted to D-load by dividing by the inside diameter in feet.

ASTM Specification C76 specifies five strength classes reinforced concrete pipe. These strength classes are expressed in terms of D-load at 0.01-inch crack and for ultimate load. The D-load to produce the 0.01-inch crack $D_{0.01}$ is the maximum load applied to the concrete pipe before a crack occurs having a width of 0.01-inch measured at close intervals, throughout a length of at least 1-foot. The D-load to produce ultimate load D_u is the maximum three-edge-bearing test load carried by a pipe, expressed as D-load. *Table II* lists 0.01-inch crack and ultimate D-loads for the strength classes covered by ASTM Specification C76.

TABLE II: Strength Requirements Reinforced Concrete Pipe ASTM C76

Strength Class	Minimum D-Load in Three-Edge Bearing Pounds per Linear Foot per Foot of Internal Diameter	
	0.01 Inch Crack- $D_{0.01}$	Ultimate- D_u
I	800	1200
II	1000	1500
III	1350	2000
IV	2000	3000
V	3000	3750

```
SSSSSSSSS  AAAAAAAAAA  MMM  MMM  MMM  MMM
SS          AA      AA  MM M M MM  MM M M MM
SSSSSSSSS  AAAAAAAAAA  MM  M  MM  MM  M  MM
          SS  AA      AA  MM      MM  MM      MM
SSSSSSSSS  AA      AA  MM      MM  MM      MM
```

P R O G R A M S A M M

AMERICAN CONCRETE PIPE ASSOCIATION
VERSION 2.0 - 1 SEPTEMBER 1990

Program SAMM computes earth loads on concrete pipe in accordance with the methods presented in the Concrete Pipe Design Manual (March 1990) and the Concrete Pipe Handbook (January 1988), published by the American Concrete Pipe Association. The user must select input values suitable to his specific installation. The information presented in the computer output is for review, interpretation, application and approval by a qualified engineer who must assume full responsibility for verifying that said output is appropriate and correct. There are no express or implied warranties. The use of this product does not constitute endorsement by ACPA or any other agents.

DATE: / /

DESIGNER:

PROGRAM SAMM

D-LOAD REQUIREMENTS FOR A 18 IN. DIAMETER CIRCULAR PIPE

 P I P E D A T A

DIAMETER (in.)	18.00
WALL B, THICKNESS (in.)	2.500

 I N S T A L L A T I O N C O N D I T I O N S

MINIMUM DEPTH OF FILL (ft.)	1.00
MAXIMUM DEPTH OF FILL (ft.)	20.00
SOIL DENSITY (lb/cu. ft.)	140.0
SPECIFIED BEDDING FACTOR	1.90
INSTALLATION TYPE	TRENCH
TRENCH WIDTH (ft.)	5.90
SOIL LATERAL PRESSURE/FRICTION TERM (KMU')	0.1650
PARAMETERS TO COMPUTE TRANSITION WIDTH	
POSITIVE PROJECTION RATIO	1.00
POSITIVE SETTLEMENT RATIO	0.50
SOIL LATERAL PRESSURE/FRICTION TERM (KMU)	0.1924
SOIL LATERAL PRESSURE COEFFICIENT	0.33

 A D D I T I O N A L L O A D S

LIVE LOAD	AASHTO HS-20
NO SURCHARGE LOAD	

 F A C T O R S O F S A F E T Y

FACTOR OF SAFETY ON 0.01 INCH CRACK D-LOAD (EARTH,LIVE)	1.00; 1.00
FACTOR OF SAFETY ON ULTIMATE LOAD (EARTH,LIVE) IN ACCORDANCE WITH ASTM C 76	
DL.01 LESS THAN 2000 LBS/FT/FT	1.5
DL.01 GREATER THAN 3000 LBS/FT/FT	1.25
DL.01 BETWEEN 2000 AND 3000 LBS/FT/FT	INTERPOLATED

RESULTS OF ANALYSIS

```

SSSSSSSSS  AAAAAAAAAA  MMM  MMM  MMM  MMM
SS          AA    AA    MM M M MM  MM M M MM
SSSSSSSSS  AAAAAAAAAA  MM  M  MM  MM  M  MM
          SS  AA    AA  MM    MM  MM    MM
SSSSSSSSS  AA    AA  MM    MM  MM    MM

```

PROGRAM SAMM

AMERICAN CONCRETE PIPE ASSOCIATION
VERSION 2.0 - 1 SEPTEMBER 1990

Program SAMM computes earth loads on concrete pipe in accordance with the methods presented in the Concrete Pipe Design Manual (March 1990) and the Concrete Pipe Handbook (January 1988), published by the American Concrete Pipe Association. The user must select input values suitable to his specific installation. The information presented in the computer output is for review, interpretation, application and approval by a qualified engineer who must assume full responsibility for verifying that said output is appropriate and correct. There are no express or implied warranties. The use of this product does not constitute endorsement by ACPA or any other agents.

PIPE DEPTH (ft.)	-----EARTH LOAD-----			LIVE	SURCH	TOTAL	BED	REQUIRED D-LOAD	
	ARCHING	>TRANS	LOAD	LOAD	LOAD	LOAD	FACT	0.01 in. ULT.	
	FACTOR		(lb/ft)	(lb/ft)	(lb/ft)	(lb/ft)		(lb/ft/ft)	
1.0	1.11	Y	297.	2603.	0.	2900.	1.90	1018.	1527.
1.5	1.17	Y	470.	1971.	0.	2440.	1.90	856.	1284.
2.0	1.23	Y	660.	1455.	0.	2115.	1.90	742.	1113.
2.5	1.30	Y	871.	1032.	0.	1903.	1.90	668.	1002.
3.0	1.37	Y	1104.	751.	0.	1855.	1.90	651.	976.
3.5	1.45	Y	1362.	616.	0.	1978.	1.90	694.	1041.
4.0	1.47	Y	1573.	516.	0.	2089.	1.90	733.	1100.
4.5	1.47	Y	1776.	439.	0.	2215.	1.90	777.	1166.
5.0	1.48	Y	1979.	378.	0.	2357.	1.90	827.	1241.
5.5	1.48	Y	2185.	329.	0.	2514.	1.90	882.	1323.
6.0	1.48	Y	2387.	290.	0.	2677.	1.90	939.	1409.
6.5	1.48	Y	2590.	257.	0.	2847.	1.90	999.	1498.
7.0	1.49	Y	2792.	229.	0.	3022.	1.90	1060.	1590.
7.5	1.49	Y	2995.	206.	0.	3201.	1.90	1123.	1685.
8.0	1.49	Y	3197.	186.	0.	3384.	1.90	1187.	1781.
8.5	1.49	Y	3400.	169.	0.	3569.	1.90	1252.	1879.
9.0	1.49	Y	3602.	155.	0.	3757.	1.90	1318.	1977.
9.5	1.49	Y	3805.	142.	0.	3947.	1.90	1385.	2077.
10.0	1.49	Y	4008.	130.	0.	4138.	1.90	1452.	2178.
10.5	1.49	Y	4210.	120.	0.	4330.	1.90	1519.	2279.
11.0	1.50	Y	4413.	111.	0.	4524.	1.90	1587.	2381.
11.5	1.50	Y	4616.	103.	0.	4719.	1.90	1656.	2484.
12.0	1.50	Y	4818.	96.	0.	4915.	1.90	1724.	2587.
12.5	1.49	Y	5014.	90.	0.	5103.	1.90	1791.	2686.
13.0	1.50	Y	5216.	84.	0.	5300.	1.90	1860.	2789.
13.5	1.50	Y	5418.	79.	0.	5497.	1.90	1929.	2893.

14.0	1.50	Y	5620.	74.	0.	5694.	1.90	1998.	2997.
14.5	1.50	Y	5823.	70.	0.	5892.	1.90	2067.	3066.
15.0	1.50	Y	6025.	66.	0.	6091.	1.90	2137.	3132.
15.5	1.50	Y	6227.	62.	0.	6289.	1.90	2207.	3196.
16.0	1.50	Y	6429.	59.	0.	6488.	1.90	2277.	3257.
16.5	1.50	Y	6632.	56.	0.	6687.	1.90	2346.	3316.
17.0	1.50	Y	6834.	53.	0.	6887.	1.90	2416.	3373.
17.5	1.50	Y	7036.	50.	0.	7087.	1.90	2487.	3427.
18.0	1.50	Y	7239.	48.	0.	7287.	1.90	2557.	3479.
18.5	1.50	Y	7441.	46.	0.	7487.	1.90	2627.	3529.
19.0	1.50	Y	7644.	43.	0.	7687.	1.90	2697.	3576.
19.5	1.50	Y	7846.	41.	0.	7887.	1.90	2768.	3620.
20.0	1.50	Y	8048.	40.	0.	8088.	1.90	2838.	3662.

DATE:

DESIGNER:

PROGRAM SAMM

D-LOAD REQUIREMENTS FOR A 24 IN. DIAMETER CIRCULAR PIPE

 P I P E D A T A

DIAMETER (in.)	24.00
WALL B, THICKNESS (in.)	3.000

 I N S T A L L A T I O N C O N D I T I O N S

MINIMUM DEPTH OF FILL (ft.)	1.00
MAXIMUM DEPTH OF FILL (ft.)	20.00
SOIL DENSITY (lb/cu. ft.)	140.0
SPECIFIED BEDDING FACTOR	1.90
INSTALLATION TYPE	TRENCH
TRENCH WIDTH (ft.)	6.50
SOIL LATERAL PRESSURE/FRICTION TERM (KMU')	0.0165
PARAMETERS TO COMPUTE TRANSITION WIDTH	
POSITIVE PROJECTION RATIO	1.00
POSITIVE SETTLEMENT RATIO	0.50
SOIL LATERAL PRESSURE/FRICTION TERM (KMU)	0.1924
SOIL LATERAL PRESSURE COEFFICIENT	0.33

A D D I T I O N A L L O A D S

LIVE LOAD	AASHTO HS-20
NO SURCHARGE LOAD	

F A C T O R S O F S A F E T Y

FACTOR OF SAFETY ON 0.01 INCH CRACK D-LOAD (EARTH,LIVE)	1.00; 1.00
FACTOR OF SAFETY ON ULTIMATE LOAD (EARTH,LIVE) IN ACCORDANCE WITH ASTM C 76	
DL.01 LESS THAN 2000 LBS/FT/FT	1.5
DL.01 GREATER THAN 3000 LBS/FT/FT	1.25
DL.01 BETWEEN 2000 AND 3000 LBS/FT/FT	INTERPOLATED

R E S U L T S O F A N A L Y S I S

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SSSSSSSSS  AAAAAAAAAA  MMM  MMM  MMM  MMM
SS          AA      AA   MM M M MM  MM M M MM
SSSSSSSSS  AAAAAAAAAA  MM   M   MM   MM   M   MM
          SS   AA      AA   MM      MM   MM      MM
SSSSSSSSS  AA          AA   MM      MM   MM      MM

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P R O G R A M S A M M

 AMERICAN CONCRETE PIPE ASSOCIATION
 VERSION 2.0 - 1 SEPTEMBER 1990

Program SAMM computes earth loads on concrete pipe in accordance with the methods presented in the Concrete Pipe Design Manual (March 1990) and the Concrete Pipe Handbook (January 1988), published by the American Concrete Pipe Association. The user must select input values suitable to his specific installation. The information presented in the computer output is for review, interpretation, application and approval by a qualified engineer who must assume full responsibility for verifying that said output is appropriate and correct. There are no express or implied warranties. The use of this product does not constitute endorsement by ACPA or any other agents.

PIPE DEPTH (ft.)	-----EARTH LOAD-----			LIVE LOAD (lb/ft)	SURCH LOAD (lb/ft)	TOTAL LOAD (lb/ft)	BED FACT	REQUIRED D-LOAD 0.01 in. ULT. (lb/ft/ft)	
	ARCHING	>TRANS	LOAD (lb/ft)						
	FACTOR								
1.0	1.08	Y	378.	3008.	0.	3386.	1.90	891.	1337.
1.5	1.12	Y	591.	2400.	0.	2991.	1.90	787.	1181.
2.0	1.17	Y	820.	1781.	0.	2600.	1.90	684.	1026.
2.5	1.22	Y	1067.	1269.	0.	2336.	1.90	615.	922.
3.0	1.27	Y	1334.	927.	0.	2261.	1.90	595.	893.
3.5	1.33	Y	1623.	763.	0.	2386.	1.90	628.	942.
4.0	1.38	Y	1935.	641.	0.	2575.	1.90	678.	1017.
4.5	1.44	Y	2272.	546.	0.	2818.	1.90	742.	1112.
5.0	1.46	Y	2562.	472.	0.	3034.	1.90	798.	1197.
5.5	1.47	Y	2827.	412.	0.	3239.	1.90	852.	1278.
6.0	1.47	Y	3091.	363.	0.	3454.	1.90	909.	1363.
6.5	1.47	Y	3356.	322.	0.	3678.	1.90	968.	1452.
7.0	1.48	Y	3625.	288.	0.	3913.	1.90	1030.	1545.
7.5	1.48	Y	3889.	260.	0.	4149.	1.90	1092.	1638.
8.0	1.48	Y	4153.	235.	0.	4388.	1.90	1155.	1732.
8.5	1.48	Y	4417.	214.	0.	4631.	1.90	1219.	1828.
9.0	1.49	Y	4682.	195.	0.	4877.	1.90	1283.	1925.
9.5	1.49	Y	4946.	179.	0.	5125.	1.90	1349.	2023.
10.0	1.49	Y	5210.	165.	0.	5375.	1.90	1414.	2122.
10.5	1.49	Y	5474.	152.	0.	5627.	1.90	1481.	2221.
11.0	1.49	Y	5738.	141.	0.	5880.	1.90	1547.	2321.
11.5	1.49	Y	6003.	131.	0.	6134.	1.90	1614.	2421.
12.0	1.49	Y	6267.	122.	0.	6389.	1.90	1681.	2522.
12.5	1.49	Y	6531.	114.	0.	6645.	1.90	1749.	2623.
13.0	1.49	Y	6795.	107.	0.	6902.	1.90	1816.	2725.
13.5	1.49	Y	7060.	100.	0.	7160.	1.90	1884.	2826.

14.0	1.49	Y	9011.	114.	0.	9125.	1.90	1921.	2882.
14.5	1.49	Y	9337.	107.	0.	9444.	1.90	1988.	2982.
15.0	1.49	Y	9663.	101.	0.	9764.	1.90	2056.	3055.
15.5	1.49	Y	9989.	96.	0.	10085.	1.90	2123.	3119.
16.0	1.49	Y	10315.	91.	0.	10405.	1.90	2191.	3182.
16.5	1.49	Y	10641.	86.	0.	10727.	1.90	2258.	3242.
17.0	1.49	Y	10967.	82.	0.	11048.	1.90	2326.	3299.
17.5	1.49	Y	11293.	78.	0.	11370.	1.90	2394.	3355.
18.0	1.50	Y	11619.	74.	0.	11693.	1.90	2462.	3408.
18.5	1.50	Y	11945.	71.	0.	12015.	1.90	2530.	3459.
19.0	1.50	Y	12271.	67.	0.	12338.	1.90	2598.	3508.
19.5	1.50	Y	12597.	64.	0.	12661.	1.90	2666.	3555.
20.0	1.49	Y	12904.	62.	0.	12965.	1.90	2730.	3596.

DATE: / /

DESIGNER:

PROGRAM SAMM

D-LOAD REQUIREMENTS FOR A 30 IN. DIAMETER CIRCULAR PIPE

P I P E D A T A

DIAMETER (in.)	30.00
WALL B, THICKNESS (in.)	3.500

I N S T A L L A T I O N C O N D I T I O N S

MINIMUM DEPTH OF FILL (ft.)	1.00
MAXIMUM DEPTH OF FILL (ft.)	20.00
SOIL DENSITY (lb/cu. ft.)	140.0
SPECIFIED BEDDING FACTOR	1.90
INSTALLATION TYPE	TRENCH
TRENCH WIDTH (ft.)	7.10
SOIL LATERAL PRESSURE/FRICTION TERM (KMU')	0.1650
PARAMETERS TO COMPUTE TRANSITION WIDTH	
POSITIVE PROJECTION RATIO	1.00
POSITIVE SETTLEMENT RATIO	0.50
SOIL LATERAL PRESSURE/FRICTION TERM (KMU)	0.1924
SOIL LATERAL PRESSURE COEFICIENT	0.33

A D D I T I O N A L L O A D S

LIVE LOAD	AASHTO HS-20
NO SURCHARGE LOAD	

F A C T O R S O F S A F E T Y

FACTOR OF SAFETY ON 0.01 INCH CRACK D-LOAD (EARTH,LIVE)	1.00; 1.00
FACTOR OF SAFETY ON ULTIMATE LOAD (EARTH,LIVE) IN ACCORDANCE WITH ASTM C 76	
DL.01 LESS THAN 2000 LBS/FT/FT	1.5
DL.01 GREATER THAN 3000 LBS/FT/FT	1.25
DL.01 BETWEEN 2000 AND 3000 LBS/FT/FT	INTERPOLATED

RESULTS OF ANALYSIS

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SSSSSSSSS  AAAAAAAAAA  MMM  MMM  MMM  MMM
SS          AA      AA  MM M M MM  MM M M MM
SSSSSSSSS  AAAAAAAAAA  MM  M  MM  MM  M  MM
          SS  AA      AA  MM      MM  MM      MM
SSSSSSSSS  AA      AA  MM      MM  MM      MM

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PROGRAM SAMM

AMERICAN CONCRETE PIPE ASSOCIATION
VERSION 2.0 - 1 SEPTEMBER 1990

Program SAMM computes earth loads on concrete pipe in accordance with the methods presented in the Concrete Pipe Design Manual (March 1990) and the Concrete Pipe Handbook (January 1988), published by the American Concrete Pipe Association. The user must select input values suitable to his specific installation. The information presented in the computer output is for review, interpretation, application and approval by a qualified engineer who must assume full responsibility for verifying that said output is appropriate and correct. There are no express or implied warranties. The use of this product does not constitute endorsement by ACPA or any other agents.

PIPE DEPTH (ft.)	-----EARTH LOAD-----			LIVE LOAD (lb/ft)	SURCH LOAD (lb/ft)	TOTAL LOAD (lb/ft)	BED FACT	REQUIRED D-LOAD 0.01 in. ULT. (lb/ft/ft)	
	ARCHING FACTOR	>TRANS LOAD (lb/ft)	LOAD (lb/ft)						
1.0	1.07	Y	460.	2830.	0.	3290.	1.90	693.	1039.
1.5	1.10	Y	712.	2777.	0.	3489.	1.90	734.	1102.
2.0	1.14	Y	981.	2069.	0.	3050.	1.90	642.	963.
2.5	1.17	Y	1266.	1480.	0.	2746.	1.90	578.	867.
3.0	1.21	Y	1571.	1084.	0.	2655.	1.90	559.	838.
3.5	1.25	Y	1895.	896.	0.	2790.	1.90	587.	881.
4.0	1.30	Y	2239.	754.	0.	2993.	1.90	630.	945.
4.5	1.34	Y	2606.	644.	0.	3250.	1.90	684.	1026.
5.0	1.39	Y	2997.	558.	0.	3554.	1.90	748.	1122.
5.5	1.44	Y	3412.	488.	0.	3900.	1.90	821.	1232.
6.0	1.46	Y	3783.	431.	0.	4214.	1.90	887.	1331.
6.5	1.47	Y	4115.	383.	0.	4498.	1.90	947.	1420.
7.0	1.47	Y	4441.	343.	0.	4784.	1.90	1007.	1511.
7.5	1.47	Y	4767.	310.	0.	5077.	1.90	1069.	1603.
8.0	1.47	Y	5093.	281.	0.	5374.	1.90	1131.	1697.
8.5	1.48	Y	5427.	255.	0.	5682.	1.90	1196.	1794.
9.0	1.48	Y	5753.	234.	0.	5986.	1.90	1260.	1890.
9.5	1.48	Y	6079.	215.	0.	6293.	1.90	1325.	1987.
10.0	1.48	Y	6404.	198.	0.	6602.	1.90	1390.	2085.
10.5	1.48	Y	6730.	183.	0.	6913.	1.90	1455.	2183.
11.0	1.49	Y	7056.	170.	0.	7226.	1.90	1521.	2282.
11.5	1.49	Y	7382.	158.	0.	7540.	1.90	1587.	2381.
12.0	1.49	Y	7708.	147.	0.	7855.	1.90	1654.	2480.
12.5	1.49	Y	8034.	138.	0.	8171.	1.90	1720.	2580.
13.0	1.49	Y	8359.	129.	0.	8488.	1.90	1787.	2681.
13.5	1.49	Y	8685.	121.	0.	8806.	1.90	1854.	2781.

14.0	1.49	Y	7324.	94.	0.	7418.	1.90	1952.	2928.
14.5	1.50	Y	7588.	89.	0.	7677.	1.90	2020.	3020.
15.0	1.50	Y	7853.	84.	0.	7937.	1.90	2089.	3087.
15.5	1.50	Y	8117.	79.	0.	8196.	1.90	2157.	3151.
16.0	1.49	Y	8369.	75.	0.	8444.	1.90	2222.	3210.
16.5	1.49	Y	8633.	71.	0.	8704.	1.90	2291.	3269.
17.0	1.50	Y	8897.	68.	0.	8964.	1.90	2359.	3327.
17.5	1.50	Y	9160.	64.	0.	9225.	1.90	2428.	3382.
18.0	1.50	Y	9424.	61.	0.	9485.	1.90	2496.	3435.
18.5	1.50	Y	9688.	58.	0.	9746.	1.90	2565.	3485.
19.0	1.50	Y	9952.	56.	0.	10008.	1.90	2634.	3533.
19.5	1.50	Y	10216.	53.	0.	10269.	1.90	2702.	3579.
20.0	1.50	Y	10480.	51.	0.	10530.	1.90	2771.	3622.

Worksheet for INTERIM ROUGH GRADED SECTION A

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.4900 %
Discharge	35.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
1+00.00	3.00
1+09.00	0.00
1+45.00	0.00
1+54.00	3.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(1+00.00, 3.00)	(1+54.00, 3.00)	0.025

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.19 ft
Elevation Range	0.00 to 3.00 ft
Flow Area	7.0 ft ²
Wetted Perimeter	37.21 ft
Hydraulic Radius	0.19 ft
Top Width	37.15 ft
Normal Depth	0.19 ft
Critical Depth	0.31 ft
Critical Slope	1.3675 %
Velocity	4.99 ft/s
Velocity Head	0.39 ft
Specific Energy	0.58 ft
Froude Number	2.022
Flow Type	Supercritical

* NOT EROSIIVE

Worksheet for INTERIM ROUGH GRADED SECTION A

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.19 ft
Critical Depth	0.31 ft
Channel Slope	6.4900 %
Critical Slope	1.3675 %

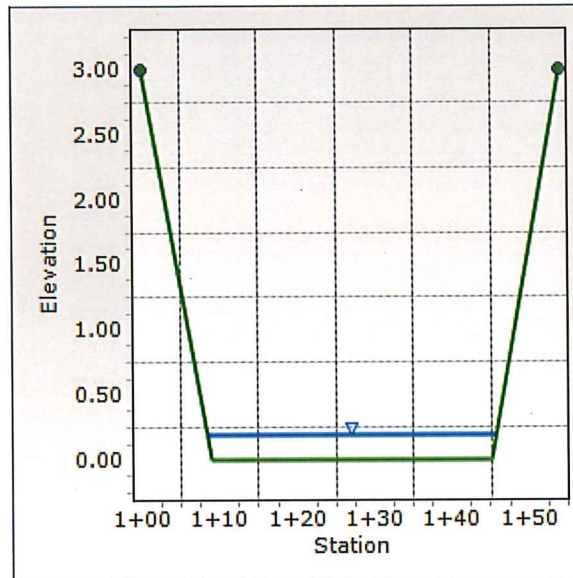
Cross Section for INTERIM ROUGH GRADED SECTION A

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.4900 %
Normal Depth	0.19 ft
Discharge	35.00 cfs



Worksheet for INTERIM ROUGH GRADED SECTION B

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	7.9000 %
Discharge	17.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
1+00.00	3.00
1+09.00	0.00
1+45.00	0.00
1+54.00	3.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(1+00.00, 3.00)	(1+54.00, 3.00)	0.025

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.12 ft
Elevation Range	0.00 to 3.00 ft
Flow Area	4.3 ft ²
Wetted Perimeter	36.74 ft
Hydraulic Radius	0.12 ft
Top Width	36.71 ft
Normal Depth	0.12 ft
Critical Depth	0.19 ft
Critical Slope	1.5968 %
Velocity	3.97 ft/s
Velocity Head	0.25 ft
Specific Energy	0.36 ft
Froude Number	2.052
Flow Type	Supercritical

NOT EROSION

Worksheet for INTERIM ROUGH GRADED SECTION B

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.12 ft
Critical Depth	0.19 ft
Channel Slope	7.9000 %
Critical Slope	1.5968 %

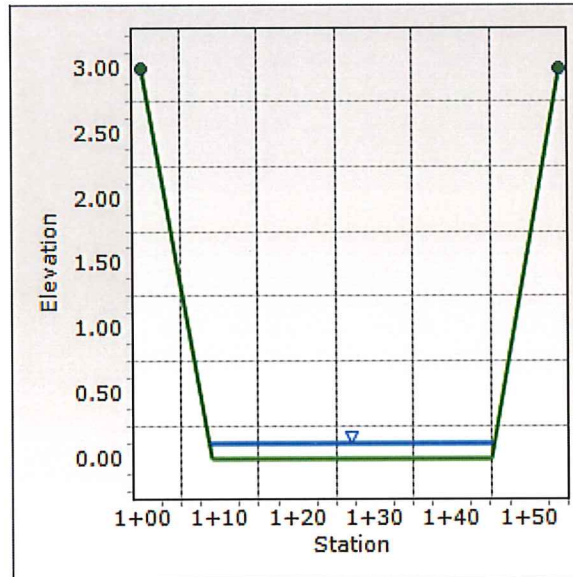
Cross Section for INTERIM ROUGH GRADED SECTION B

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	7.9000 %
Normal Depth	0.12 ft
Discharge	17.00 cfs



Worksheet for COS-2 WASH SECTION C

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	7.1900 %
Discharge	100.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+90.00	105.00
1+00.00	105.00
1+00.00	93.00
1+06.00	93.00
1+21.00	95.00
1+29.50	95.50
1+36.00	95.70
1+46.50	95.00
1+62.00	94.00
1+71.50	95.00
1+85.00	98.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+90.00, 105.00)	(1+85.00, 98.00)	0.030

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	1.00 ft
Elevation Range	93.00 to 105.00 ft
Flow Area	9.8 ft ²
Wetted Perimeter	14.73 ft
Hydraulic Radius	0.67 ft
Top Width	13.66 ft
Normal Depth	1.00 ft
Critical Depth	1.52 ft
Critical Slope	1.5718 %

Worksheet for COS-2 WASH SECTION C

Results

Velocity	10.19 ft/s
Velocity Head	1.61 ft
Specific Energy	2.62 ft
Froude Number	2.119
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.00 ft
Critical Depth	1.52 ft
Channel Slope	7.1900 %
Critical Slope	1.5718 %

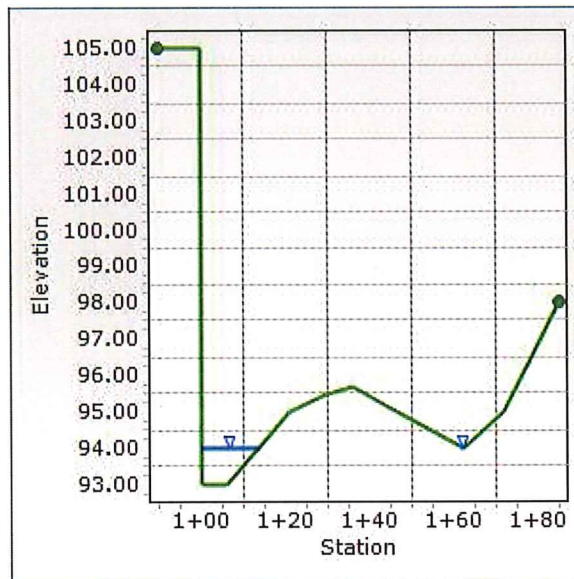
Cross Section for COS-2 WASH SECTION C

Project Description

Friction Method	Manning
Solve For	Formula
	Normal Depth

Input Data

Channel Slope	7.1900 %
Normal Depth	1.00 ft
Discharge	100.00 cfs



Worksheet for COS-2 WASH SECTION D

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Channel Slope	6.4100 %
Discharge	100.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+90.00	13.00
1+00.00	13.00
1+00.00	5.00
1+09.00	4.00
1+17.50	3.00
1+28.50	4.00
1+39.00	4.00
1+48.00	3.00
1+61.00	3.00
1+72.00	3.00
1+78.00	4.00
1+83.00	8.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+90.00, 13.00)	(1+83.00, 8.00)	0.030

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.47 ft
Elevation Range	3.00 to 13.00 ft
Flow Area	15.0 ft ²
Wetted Perimeter	40.27 ft
Hydraulic Radius	0.37 ft
Top Width	40.16 ft
Normal Depth	0.47 ft
Critical Depth	0.69 ft

Worksheet for COS-2 WASH SECTION D

Results

Critical Slope	1.5673 %
Velocity	6.65 ft/s
Velocity Head	0.69 ft
Specific Energy	1.16 ft
Froude Number	1.918
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.47 ft
Critical Depth	0.69 ft
Channel Slope	6.4100 %
Critical Slope	1.5673 %

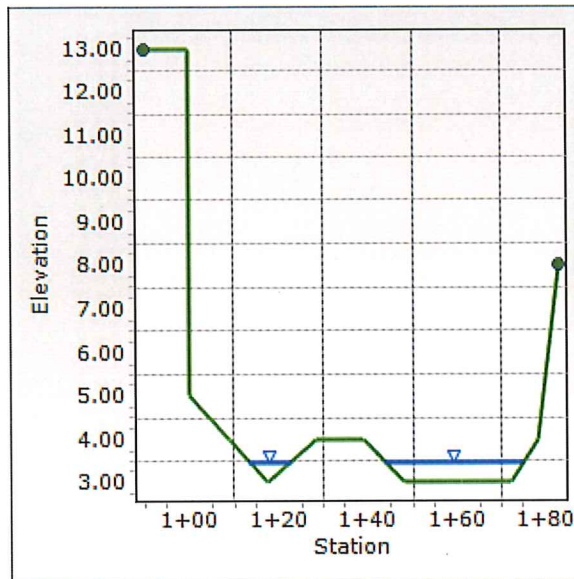
Cross Section for COS-2 WASH SECTION D

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.4100 %
Normal Depth	0.47 ft
Discharge	100.00 cfs



Worksheet for COS-2 WASH SECTION E

Project Description

Friction Method	Manning
	Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.7200 %
Discharge	100.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+90.00	48.00
1+00.00	48.00
1+00.00	46.20
1+02.00	46.00
1+14.00	45.00
1+37.00	45.20
1+47.50	45.60
1+50.00	45.70
1+64.00	45.20
1+91.00	45.00
1+96.00	45.30
2+04.00	46.00
2+08.00	48.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+90.00, 48.00)	(2+08.00, 48.00)	0.030

Options

Current Roughness Weighted Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results

Normal Depth	0.44 ft
Elevation Range	45.00 to 48.00 ft
Flow Area	21.4 ft ²
Wetted Perimeter	75.10 ft
Hydraulic Radius	0.29 ft
Top Width	75.05 ft
Normal Depth	0.44 ft

Worksheet for COS-2 WASH SECTION E

Results

Critical Depth	0.54 ft
Critical Slope	1.8522 %
Velocity	4.67 ft/s
Velocity Head	0.34 ft
Specific Energy	0.78 ft
Froude Number	1.539
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.44 ft
Critical Depth	0.54 ft
Channel Slope	4.7200 %
Critical Slope	1.8522 %

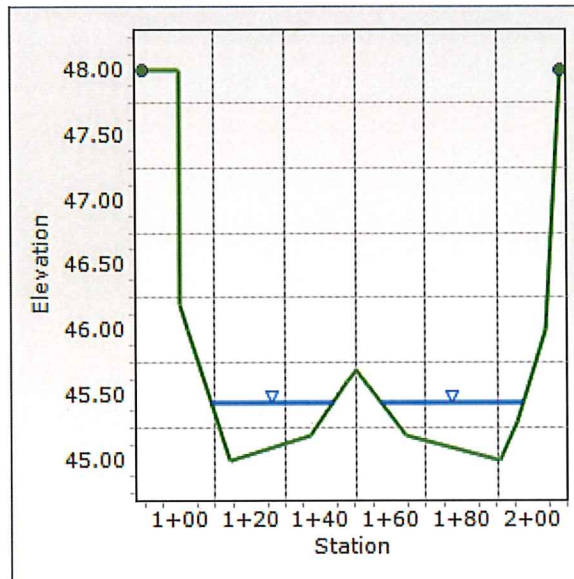
Cross Section for COS-2 WASH SECTION E

Project Description

Friction Method	Manning
Solve For	Formula
	Normal Depth

Input Data

Channel Slope	4.7200 %
Normal Depth	0.44 ft
Discharge	100.00 cfs



Rick Read

From: Chris Zrinyi <cZRinyi@rcinevada.com> on behalf of Chris Zrinyi
Sent: Wednesday, September 30, 2020 5:08 PM
To: Rick Read
Subject: FW: Falcon Crest Drainage Study
Attachments: DFD_TDS Update 1.pdf

Thank you,
Chris Zrinyi

RCI Engineering
500 S. Rancho Dr Suite #17
Las Vegas, Nevada 89106
702-756-6694 (Cell)
702-998-2104 (Direct)

From: Scott Anderson [mailto:sanderson@woodsidehomes.com]
Sent: Wednesday, September 30, 2020 3:59 PM
To: Chris Zrinyi <cZRinyi@rcinevada.com>
Subject: FW: Falcon Crest Drainage Study

Please see below and attached
thanks

Scott Anderson
Land Manager
Woodside Homes of Nevada, LLC
7895 West Sunset Road. #110
Las Vegas, Nv. 89113
702-889-7824 Office
702-807-6239 Cell



From: Barcos, Nicolas <Nicolas.Barcos@atkingglobal.com>
Sent: Wednesday, September 30, 2020 3:44 PM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>; Scott Anderson <sanderson@woodsidehomes.com>
Cc: Rose Carver <rose.carver@howardhughes.com>; Carl Anderson <carl.anderson@hhc-contractor.com>; Wilson, David D <David.Wilson5@atkingglobal.com>; Anderson, Molly <Molly.Anderson@atkingglobal.com>
Subject: RE: Falcon Crest Drainage Study

Vincent and Scott,

Dave is correct, the 68 cfs flow will be coming into the system in the current condition, until Village 27 is further developed.

We took this flow into account when we sized the Desert Foothills system. While the TDS shows ~50 cfs ultimate flow from Parcel D, we knew there was a big potential that Parcels C and D would get combined, so we internally ran the Parcel C/D combined flow (Q100=97CFS at SDDI#6) through the system to determine pipe sizes. The 54" pipes near the intersection of Desert Foothills and Lake Mead were sized for this flow. The Q100 flow that is shown at the COS stub (Q100=90cfs at SDDI#4) is the combination of the COS and the 68 cfs bypass through the tunnel.

Attached you will find the interim and ultimate condition exhibits for V22 Desert Foothills. I marked up the second page to show what ultimate design flows we used to size the system.

Please let me know if you have any questions or concerns.

Thank you,
Nic Barcos, PE
Senior Engineer, Civil

Atkins, member of the SNC-Lavalin Group
2270 Corporate Circle, Suite 200, Henderson, NV 89074-7755
Direct: +1 702 551 0379 | Main: +1 702 263 7275

From: Wilson, David D <David.Wilson5@atkinsglobal.com>
Sent: Tuesday, September 29, 2020 10:23 AM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Cc: Scott Anderson <sanderson@woodsidehomes.com>; Rose Carver <rose.carver@howardhughes.com>; Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>; Carl Anderson <carl.anderson@hhc-contractor.com>
Subject: RE: Falcon Crest Drainage Study

Vincent,

The Lake Mead pedestrian crossing is to basically have no storm water flowing through the crossing. As the storm drain system is designed and constructed further upstream, the flow in this particular wash is being diverted and no flow is intended to flow through the pedestrian crossing. As of now, the Kettle Ridge storm drain system (construction underway) is picking up significant flow in this particular wash just upstream of the pedestrian crossing. In fact, the Kettle Ridge storm drain system is picking up all the upstream flow except for an overflow amount of 68 cfs during the 100 year event. Smaller event flows will be picked up without the overflow and therefore not impacting the pedestrian crossing. Currently, the designs underway upstream do not have an approved drainage study therefore we not able to provide an approved drainage study to represent zero flow in the pedestrian crossing at this time.

David Wilson PE
Respect, Trust, Able

Atkins, member of the SNC-Lavalin Group
2270 Corporate Circle, Suite 200, Henderson, NV 89074
Direct: +1 (702) 551 0310 | Mob: +1 (702) 544 8872 | Main: +1 (702) 263 7275
Email: David.Wilson5@atkinsglobal.com

From: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Sent: Tuesday, September 29, 2020 9:24 AM
To: Carl Anderson <carl.anderson@hhc-contractor.com>; Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>
Cc: Scott Anderson <sanderson@woodsidehomes.com>; Rose Carver <rose.carver@howardhughes.com>; Wilson, David D <David.Wilson5@atkinsglobal.com>
Subject: FW: Falcon Crest Drainage Study

Carl and Nic,

Can you please look into Scott's question below and get back to us?

Thanks.

From: Scott Anderson
Sent: Thursday, September 24, 2020 3:10 PM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Subject: FW: Falcon Crest Drainage Study

Vincent,

Have you had a chance to look into RCI's question

"Previous emails mentioned that the wash to the north of us was being revised to not accept offsite flows, so that the only storm flows in the wash would be generated by the wash area itself. Attached is a figure from the Atkins study showing 68 cfs will drain through the pedestrian tunnel into the wash. We can't find a drainage study that shows this flow being sent somewhere else. Can THHC provide us the drainage study update that shows no flow coming through the tunnel or should we plan for the 68 cfs coming through the tunnel. "

thanks

Scott Anderson
Land Manager
Woodside Homes of Nevada, LLC
7895 West Sunset Road. #110
Las Vegas, Nv. 89113
702-889-7824 Office
702-807-6239 Cell



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Consider the environment. Please don't print this e-mail unless you really need to.

APPENDIX C – REFERENCE MATERIALS

G. C. Wallace Engineering, Technical Drainage Study For Western Segment Las Vegas Beltway From Summerlin Parkway to Cheyenne Avenue, January 2000.

Atkins, Summerlin West Village 22 Kestrel Creek Avenue (Street I): Desert Foothills Drive to Kettle Ridge Drive (Street J), December, 2019.

Atkins, Summerlin West Village 22 Desert Foothills Drive Fleet Wing Avenue (Street G) to Lake Mead Boulevard, December, 2019.

Atkins, Summerlin West Village 22 Kettle Ridge Drive (Street J) Fleet Wing Avenue (Street G) to Lake Mead boulevard, March, 2019

**TECHNICAL DRAINAGE STUDY
FOR
WESTERN SEGMENT LAS VEGAS BELTWAY
FROM SUMMERLIN PARKWAY TO CHEYENNE
AVENUE**



G.C. WALLACE, INC.
Engineering/Architecture

G. C. WALLACE, PE/SE, PLS
JAMES A. DUDDLESTEN, PE
MARIE RAINWATER
MICHAEL D. ROSS, PE
CHRISTOPHER W. ANDERSON, PE
CALVIN L. BLACK, PE, PLS
BENJAMIN C. SMITH, PE
SCOTT R. PLUMMER, PE
E. ROBERT PETERSON

PAUL BURN, PLS
MICHAEL J. CSIZMADIA, PE
C. RUSSELL DAVIS, PE/SE
DOUGLAS M. HANKEL
DONALD A. HASELHOFF, PE, CEM
MARVIN W. MAIZE
JOHN R. TOBIN, P.E.
GREGORY PATCH, PE
HOWARD K. VANDER MEER, PE
ARNE H. WAGLEY
EUGENE W. WRIGHT, PE

JOSEPH A. BODROG, PLS
GARY L. CARLSON, AIA
DONALD L. HOTCHKISS JR., PE
BERT A. HUGHES, PE
RICKEY D. HUNSAKER, PE
JERRY D. JOHNSTON
DANNY S. McFADDEN, PE
THOMAS R. NICHOLS, PE
BRIAN L. SCHMIDT, PE
JEFF W. STAYTON, PE
RICHARD STEUBING, PLS
SAUNDRA L. VANCE, CCS, CCCA
JOHN M. WALKER, PE
G. IRA WALLACE, PE

JIM B. BAKKEDAHL, PE
DENNIS R. BROWN, PE
ROY D. CLARK, PE
RICHARD G. CLARKE
HUBERTO DeLUNA, AIA
THOMAS P. DYSON, PE
DAVID W. ENGEL, PLS
RAY G. FLAKE, PE
RANDALL K. GREMLICH, PE
KENNETH M. HANIFAN, PE
J. P. HIGGINS, PLS
DANNY E. HILL, PLS
ROY G. HOLLOWELL, PLS
GERALD L. HOLTON, PLS
MICHAEL KIDD, PLS
PAUL R. LARSON, PE
LLOYD B. MATHESON
DOUG McCARTNEY, PE
TIMOTHY McCOY, PE
WILLIAM METCALF
RANDY W. MROWICKI, PLS
RIMAH I. NAZZAL, PE
D. GREGORY NEEL, PLS
JERRY E. PRUITT, PE
WALID A. RIFAI, P.E.
AL L. ROBINSON, PE
RICHARD A. E. STRUTZ
MILO L. TERZICH, PE
ROBERT WOODSON, PE

500.840

January 14, 2000

Robert Herr, P.E.
Clark County Department of Public Works
Design Engineering Division
500 So. Grand Central Parkway
Las Vegas, NV 89155

Subject: Western Beltway - Summerlin Parkway to Cheyenne Avenue

Dear Mr. Herr:

Attached is the final drainage study and design memorandum for this section of the Western Beltway. This report supercedes the drafts of the report prepared for previous submittals. This final report incorporates the verbal and written comments received from the City of Las Vegas, Clark County Design Engineering Division, and Clark County Regional Flood Control District. Preliminary verbal comments from NDOT were also incorporated in the final report and plans.

We trust that this report will supply all the information needed to understand the hydrology and hydraulics related to the regional channel west of the Beltway and related to the storm drain and ditch flows adjacent to the road improvements.

Very truly yours,

G. C. WALLACE, INC.

Randall K. Gremlich
Randall K. Gremlich, P. E.
Project Manager

/rkg

Encl.



1/14/00

calculating T_c is outlined in Section 602 of the Manual.³ Lag time calculations for the project site are included in Appendix A.

VI. EXISTING CONDITIONS

The existing offsite flows generally flow east until they are intercepted by the rough graded Western Beltway (rough graded during the gravel extraction plan). They then combine with onsite flows from the Western Beltway and flow north along the Western Beltway until they reach Cheyenne Avenue then flow north east into the Borden berm and diversion channel.

The HEC-1 computer program from the USACOE (Reference 4) was used to conduct a hydrologic analysis of the offsite drainage patterns for the Initial Condition Plan. See Figure 5, and Appendix A for detailed hydrologic analysis data).

The existing condition flows were greater than the ultimate condition flows and were used for the detailed hydraulic design of the Western Beltway Channel. See Table 1 for the design discharges used in the Western Beltway Channel hydraulic analysis.

TABLE 1 PROPOSED (EXISTING) OFFSITE DRAINAGE CONDITIONS HEC-1 SUMMARY					
Basin/ Location*	Q100 (cfs)	Basin/ Location*	Q100 (cfs)	Basin/ Location*	Q100 (cfs)
X-1N	611	X-9N	15	C-4 (Comb. C-3 & X-5N)	1093
X-2N	197	X-10N	46	C-5 (Comb. C-4 & X-6N)	1280
X-3N	248	X-11N	57	C-6 (Comb. C-5 & X-7N)	1664
X-4N	120	X-12N	59	C-7 (Comb. C-6 & X-8N)	1685
X-5N	196	X-13N	59	C-8 (Comb. C-7 & X-9N)	1692
X-6N	230	C-1 (Comb. X-1N & X-2N)	709	C-9 (Comb. C-8 & X-10N)	1769
X-7N	470	C-2 (Comb. C-1 & X-3N)	903	C-10 (Comb. C-9, X-11N, & X-12N)	1969
X-8N	41	C-3 (Comb. C-2 & X-4N)	967	C-11 (Comb. C-10 & X-13N)	2005

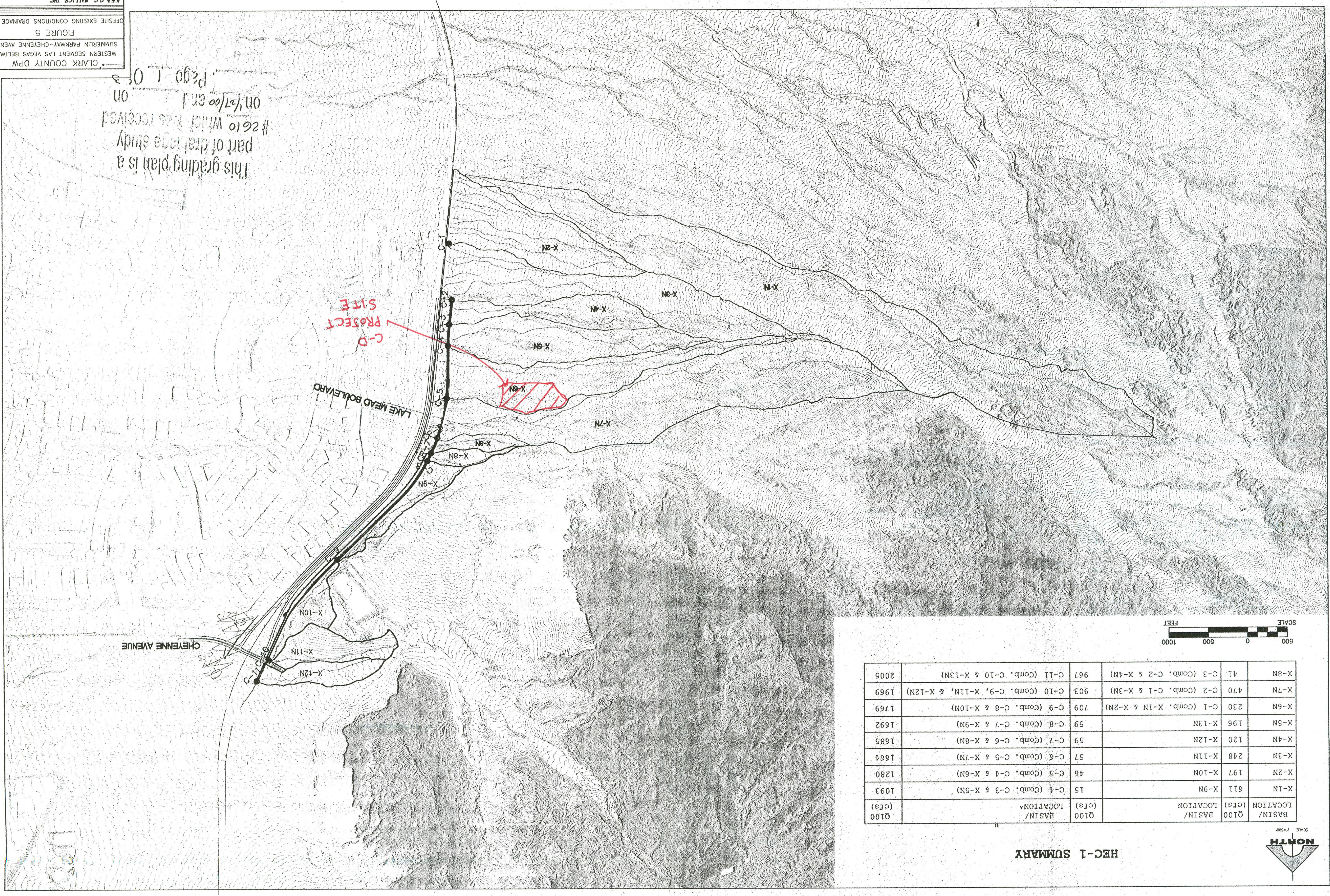
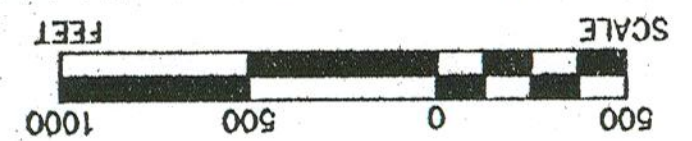
*See Figure 5



SCALE 1"=500'

HEC-1 SUMMARY

BASIN/ LOCATION (cfs)	BASIN/ LOCATION (cfs)	Q100	Q100
X-1N	611	X-9N	15
X-2N	197	X-10N	46
X-3N	248	X-11N	57
X-4N	120	X-12N	59
X-5N	196	X-13N	59
X-6N	230	C-1 (Comb. X-1N & X-2N)	709
X-7N	470	C-2 (Comb. C-1 & X-3N)	903
X-8N	41	C-3 (Comb. C-2 & X-4N)	967
		C-4 (Comb. C-3 & X-5N)	15
		C-5 (Comb. C-4 & X-6N)	46
		C-6 (Comb. C-5 & X-7N)	57
		C-7 (Comb. C-6 & X-8N)	59
		C-8 (Comb. C-7 & X-9N)	59
		C-9 (Comb. C-8 & X-10N)	709
		C-10 (Comb. C-9, X-11N, & X-12N)	903
		C-11 (Comb. C-10 & X-13N)	967
			2005



Summerlin West Village 22

Kestrel Creek Avenue (Street I):
Desert Foothills Drive to Kettle Ridge Drive
(Street J)

October 16, 2019

Addendum #1

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		December 2, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Summerlin West V22 – Kestrel Creek Avenue (Street I) (from Desert Foothills Drive to Kettle Ridge Drive <Street J>)	
Cross Streets:	Desert Foothill Drive & Kestrel Creek Ave.	COPIES TO:
File Number:	F:\Depot\DSMemos\DS5171C.doc	Atkins
Parcel Number:	137-14-401-006 & 137-23-101-002	
Zoning Action:	N/A	
FEMA Flood Zone	YES	NO ☒
Proposed Storm Drain	YES ☒	NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/4/2019	Not Approved	\$400.00	3518203: \$400
2 nd Submittal	10/16/2019	11/6/2019	Not Approved	\$400.00	3612957: \$400
Supplement	11/14/2019	12/2/2019	See Comments Below	N/C	N/C
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

☒	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. The subject street improvement of *Kestrel Creek Avenue* is premised on the existence of *Kettle Ridge Drive* on the west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage study of "*Summerlin West V22 - Kettle Ridge Drive (Street J) and Scurry Bend Drive (Street N) Street Improvements (Lake Mead Blvd. to Fleet Wing Ave.)*".
2. The project proposes to build temporary drainage facilities, ie, berms/swales along the north and south sides of *Kestrel Creek Avenue* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T20S/R59E/14

AREA K-14

3410

3405

3400

3395

3390

3385

3380

3375

3370

3365

EXISTING GROUND • PIPE

PROFILE GRADE • PIPE

SDMH#5 - TYPE III SDMH
STA 18+42.46, 10.70' RT
RIM=3389.12
INV IN=3378.28 NE (36" SD)
INV OUT=3378.08 SE (36" SD)

SDMH#6 - NDOT TYPE II
STA 18+42.55, 48.08 RT
RIM=3386.37
INV OUT=3379.23 SW (36" SD)

4' MIN.

83.83 INV

74.90 INV

12" SS

37.38 LF
36" RCP CLASS III SD
S=2.55%
Q100' ULT: 50 CFS

ATE HGL

EXISTING GROUND • PIPE

PROFILE GRADE • PIPE

(3409.5)
3395.68

(3405.7)
3389.01

(3405.3)
3389.12

(3403.3)
3389.00

(3401.9)
3386.35

-0+70

-0+50

0+00

0+50

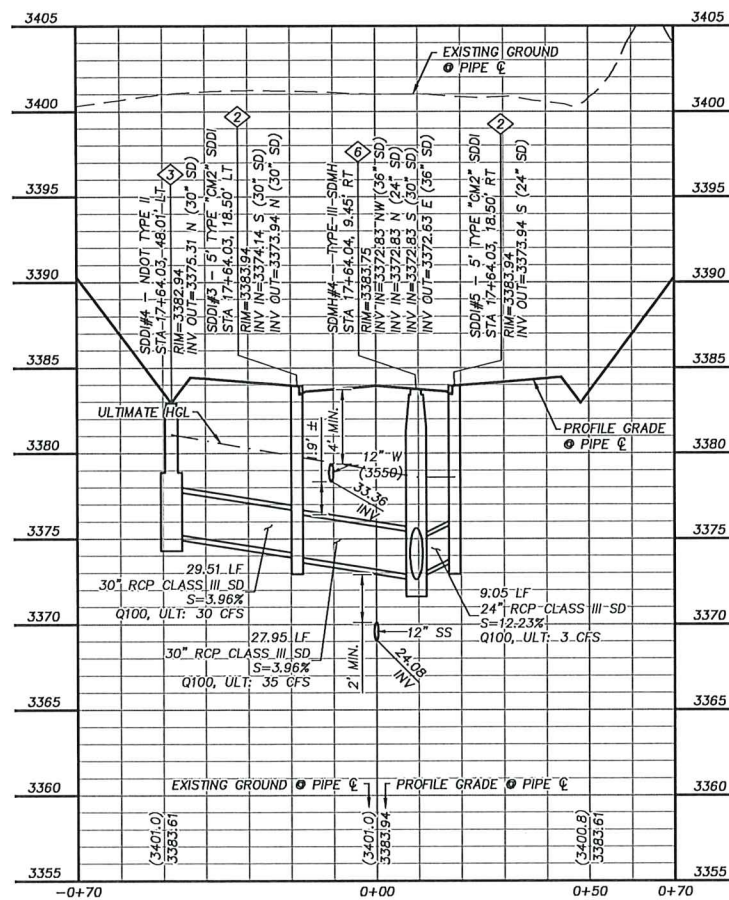
0+70

GRAPHIC SCALE

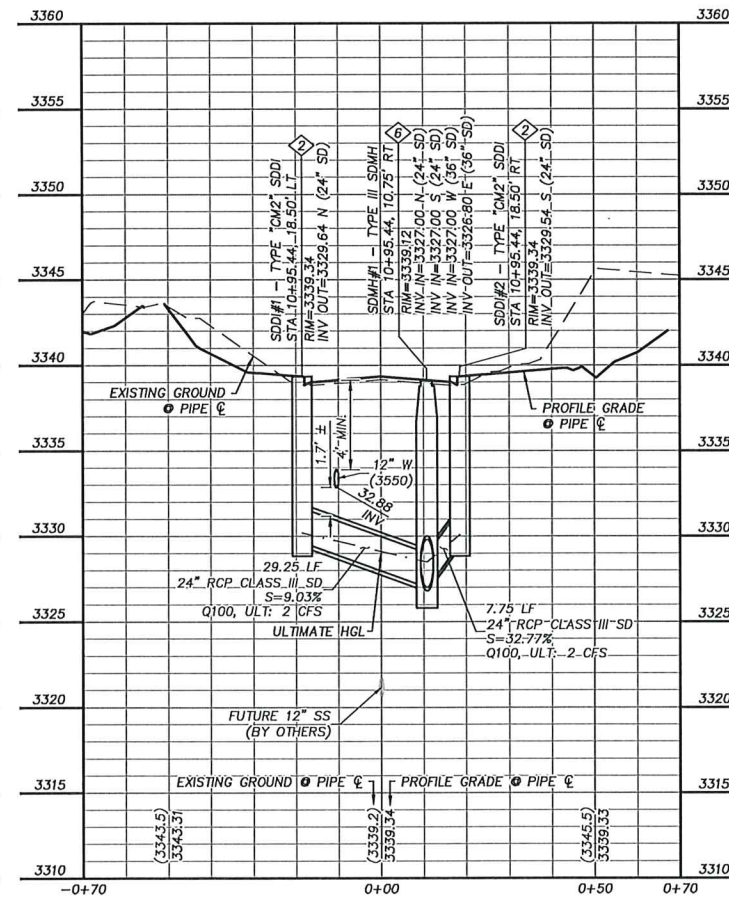
The graphic scale consists of two horizontal bars. The top bar is labeled 'HORIZONTAL: 1" = 20'' and has a scale from 0 to 40 feet. The bottom bar is labeled 'VERTICAL: 1" = 5'' and has a scale from 0 to 10 feet. Both bars are divided into alternating black and white segments, with the first segment on the left being black.

HORIZONTAL: 1" = 20'

VERTICAL: 1" = 5'



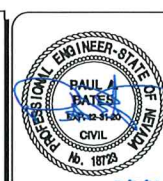
BASIS OF BEARING	BENCHMARK
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°38' WEST OF THE GREENWICH MERIDIAN.	CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) F26 USCGS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DEFECTION BASIN. 1215.819' NOD.



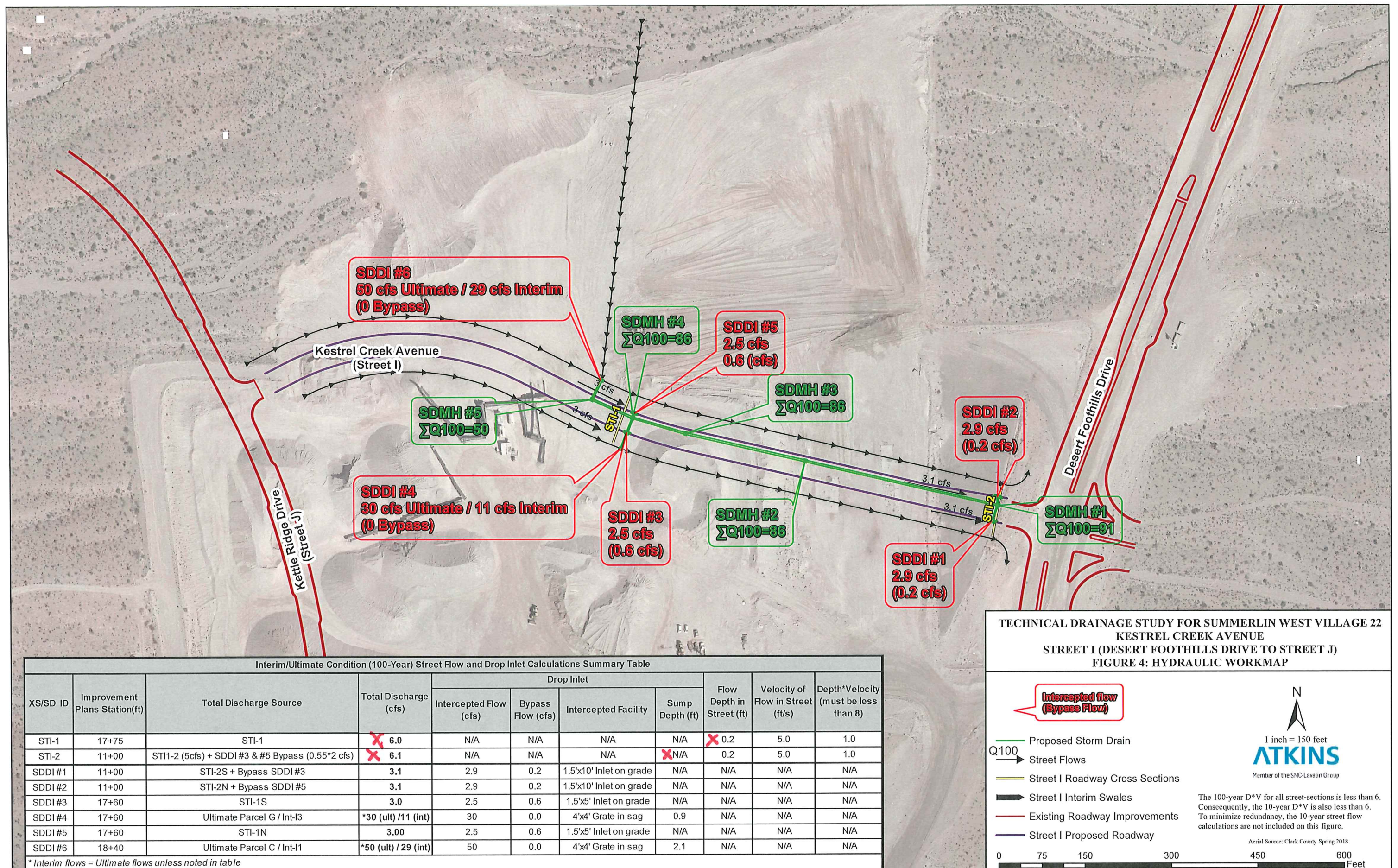
 Call before you Underground 1-702-432-5300 FIREARM AND AIRCRAFT REPAIR AND RECONSTRUCTION	Call before you Dig AFTER CUTTING UNDERGROUND UTILITY LINES Call 811 on 1-800-842-2444	BOOM FITTING OVERHEAD POWER LINES TO THE GROUND. CALL BEFORE YOU DO OVERHEAD  1-702-227-2929
--	---	---

- ① SAWCUT AND MATCH EXISTING
- ② NOT USED
- ③ NOT USED
- ④ CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- ⑤ NOT USED
- ⑥ FUTURE SIDEWALK BY OTHERS
- ⑦ CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
- ⑧ CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
- ⑨ CONSTRUCT 0" FLUSH CURB
- ⑩ TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
- ⑪ NOT USED
- ⑫ CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 24 FOR TYPICAL PAVEMENT SECTION.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



DESIGNED BY: L. MACLAY		SUMMERLIN VILLAGE 22 SUMMERLIN® KESTREL CREEK AVENUE (STREET I) DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J) LATERAL PROFILES	 SUMMERLIN®	 2270 Corporate Circle Suite 200 Henderson, Nevada, 89074 Tel: 702.263.7275 Fax: +1/702.263.7200	REVISIONS		
DRAWN BY: L. MACLAY CHECKED BY: DATE: 08/27/2019 DRAINING NO. 21/27					REV.	DESCRIPTION	BY





ATKINS
Member of the SNC-Lavalin Group



Summerlin Village West 22

Desert Foothills Drive

Fleet Wing Avenue (Street G) to Lake Mead
Boulevard

October 16, 2019

Addendum #1

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		December 2, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Summerlin West V22 – Desert Foothills Drive Street Improvements from Lake Mead Boulevard to Fleet Wing Avenue (Street G)	
Cross Streets:	Lake Mead Boulevard & Desert Foothill Drive	COPIES TO:
File Number:	F:\Depot\DSMemos\DS5170C.doc	Atkins
Parcel Number:	137-14-401-006 & 137-23-101-002	Howard Hughes Company, LLC
Zoning Action:	N/A	Bart Anderson, P.E., DevCo
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES X	NO
		CCRFC

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	8/5/2019	9/5/2019	Not Approved	\$400.00	3518204: \$400
2 nd Submittal	10/16/2019	11/7/2019	Not Approved	\$400.00	3612960: \$400
Supplement	11/14/2019	12/2/2019	See Comments Below	N/C	N/C
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
X	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

***** The Conditional Approval of this Drainage Study is to allow the engineer/developer to submit the Improvement Plans to City Land Development Only**

***** Do not submit the Drainage Study to Clark County Regional Flood Control District (CCRFC) prior to the Structural Design and Calculations being approved by the City Building & Safety Department**

- Second Request:** Drop inlets deeper than 10' require special structural design and structural calculations. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Flood Control prior to final acceptance of the drainage study.
- Second Request: Sheet 20/33, Sheet 21/33 and all pertinent sheets:** SDMH #1 which ties the existing 66"-RCP in Lake Mead Boulevard and the proposed 54"-RCP in Desert Foothills Drive is noted to be constructed by the subject project. However, shouldn't it that SDMH #1 be already constructed by the "Summerlin West V22 – Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)" project which should go prior to the subject improvements?

The response was that the manhole SDMH #1 will be constructed and break into an existing 66" RCP with the proposed subject improvements.

It appears that pipe to pipe (new to existing) connections will be required. Provide connection detail in the next submittal.

A supplemental **Sheet 33/38** was submitted on November 14, 2019, **Detail Section E/33** must include detail of reinforcement connection from the existing pipe to the new manhole wall. Structural calculations must be approved by *City Building Department* prior to the final approval of the drainage study.

The following conditions are repeated until they are complete:

3. The subject street improvement of *Desert Foothills Drive* is premised on the existence of *Lake Mead Boulevard* and *Kettle Ridge Drive* on the north and west for flood cut-off protection. The subject drainage study will not be approved prior to the final approval of the technical drainage studies of "Summerlin West V22 – *Lake Mead Boulevard (Desert Foothills Drive to Kettle Ridge Drive)*" and "Summerlin West V22 – *Kettle Ridge Drive (Lake Mead Boulevard to Fleet Wing Avenue)*".
4. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District (CCRFCD)* master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.

Please note that effective March 15, 2019, the CCRFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

<http://gustfront.ccrfcd.org/LandDev/LandDev.aspx>

5. The project proposes to build temporary drainage facilities, ie, berms/swales along the west side of *Desert Foothills Drive* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

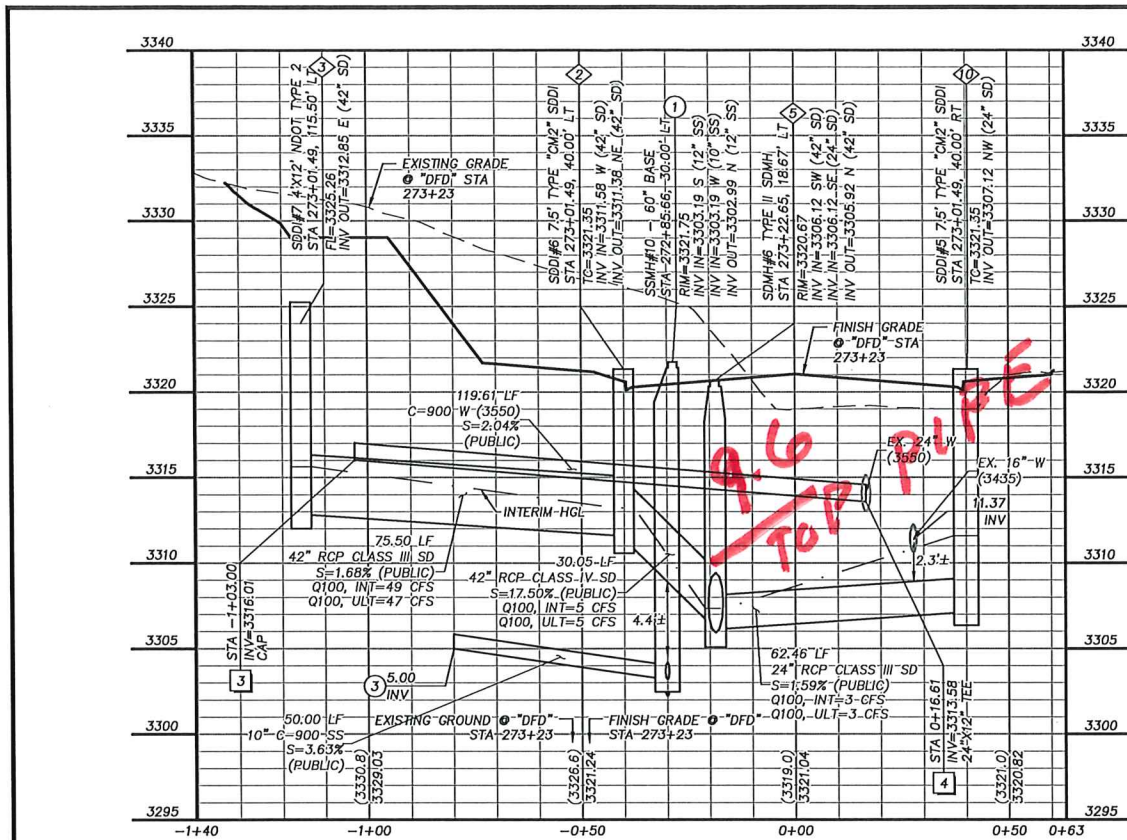
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

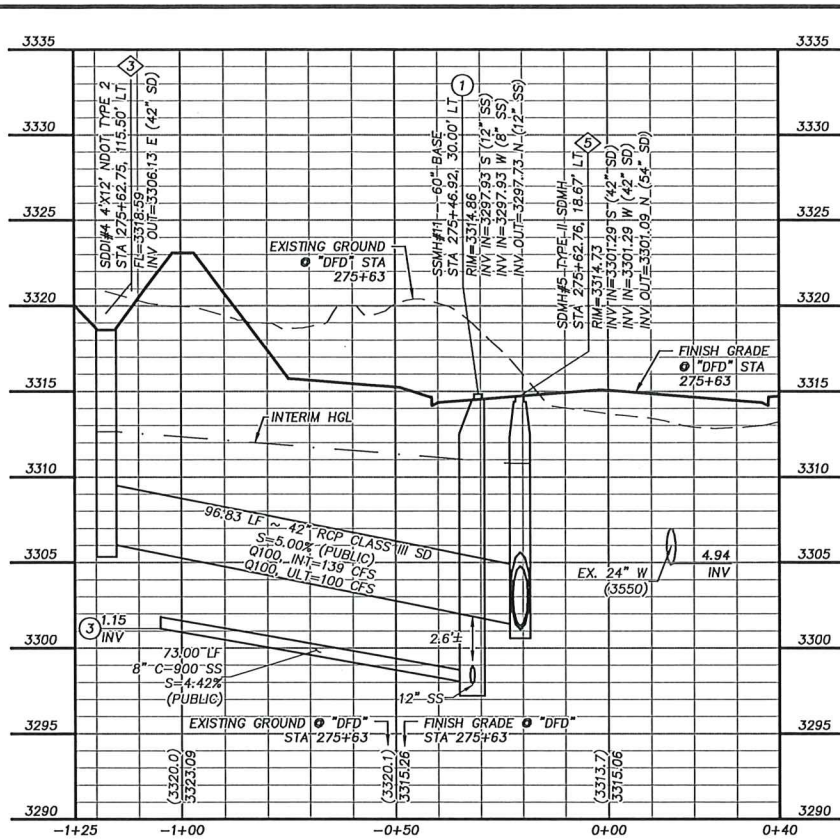
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T/R/S: T20S/R59E/14

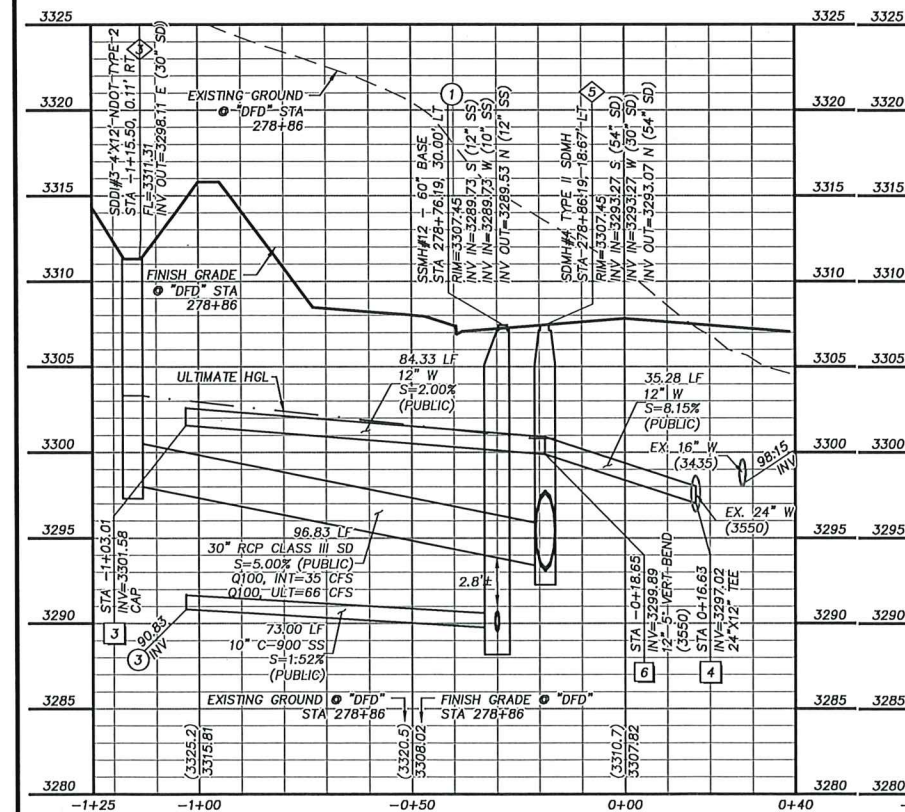
AREA K-14



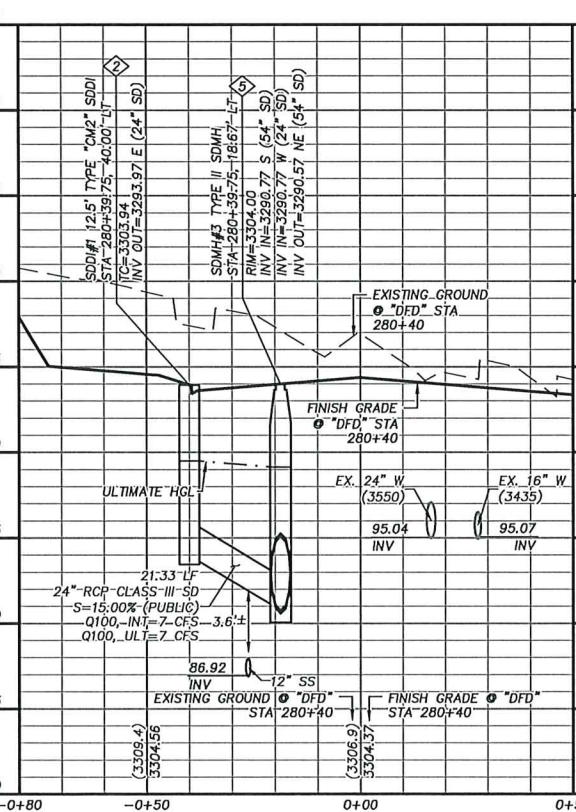
STORM DRAIN LATERAL PROFILE
"DFD" STA. 273+23 SEE SHEET 19



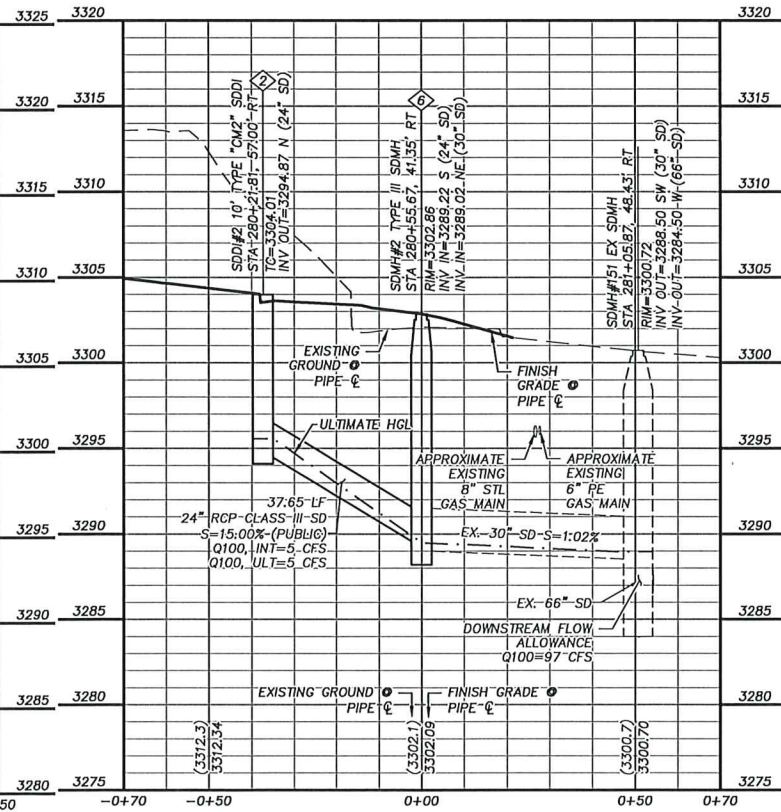
STORM DRAIN LATERAL PROFILE
"DFD" STA. 275+63 SEE SHEET 19



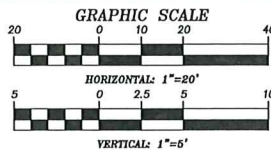
STORM DRAIN LATERAL PROFILE
"DFD" STA. 278+86 SEE SHEET 21



STORM DRAIN LATERAL PROFILE
"DFD" STA. 280+40 SEE SHEET 21



STORM DRAIN LATERAL PROFILE
"DFD" PIPE SEE SHEET 21



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136925 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____
CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT. DS#5155A

BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03



STORM DRAIN CONSTRUCTION NOTES

- INSTALL STORM DRAIN. SEE SHEET 30 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
- INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
- INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 30)
- INSTALL TYPE II SD MANHOLE PER CCAUSD #405
- INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
- INSTALL TYPE III SD MANHOLE PER CCAUSD #406
- REMOVE CAP AND CONNECT TO EXISTING STORM DRAIN STUB
- STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL SEE SHEET 30
- INSTALL RIP-RAP (D50=8", THICKNESS=16")
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- INSTALL SEWER MANHOLE PER DCSWCS SD-1 AND SD-4
- INSTALL SEWER MAIN PER DCSWCS SD-17
- STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"x4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
- REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
- ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
- PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19

WATERLINE CONSTRUCTION NOTES

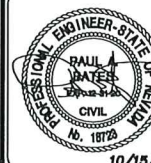
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- INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
- INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1')
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- CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
- FUTURE SIDEWALK BY OTHERS
- CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
- CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
- CONSTRUCT 0" FLUSH CURB
- TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
- CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 3 FOR TYPICAL PAVEMENT SECTION.
- INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL B ON SHEET 33

NOTE: ALL WATERLINE LATERALS ARE CONNECTED TO THE 24" 3550 WATER MAIN.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

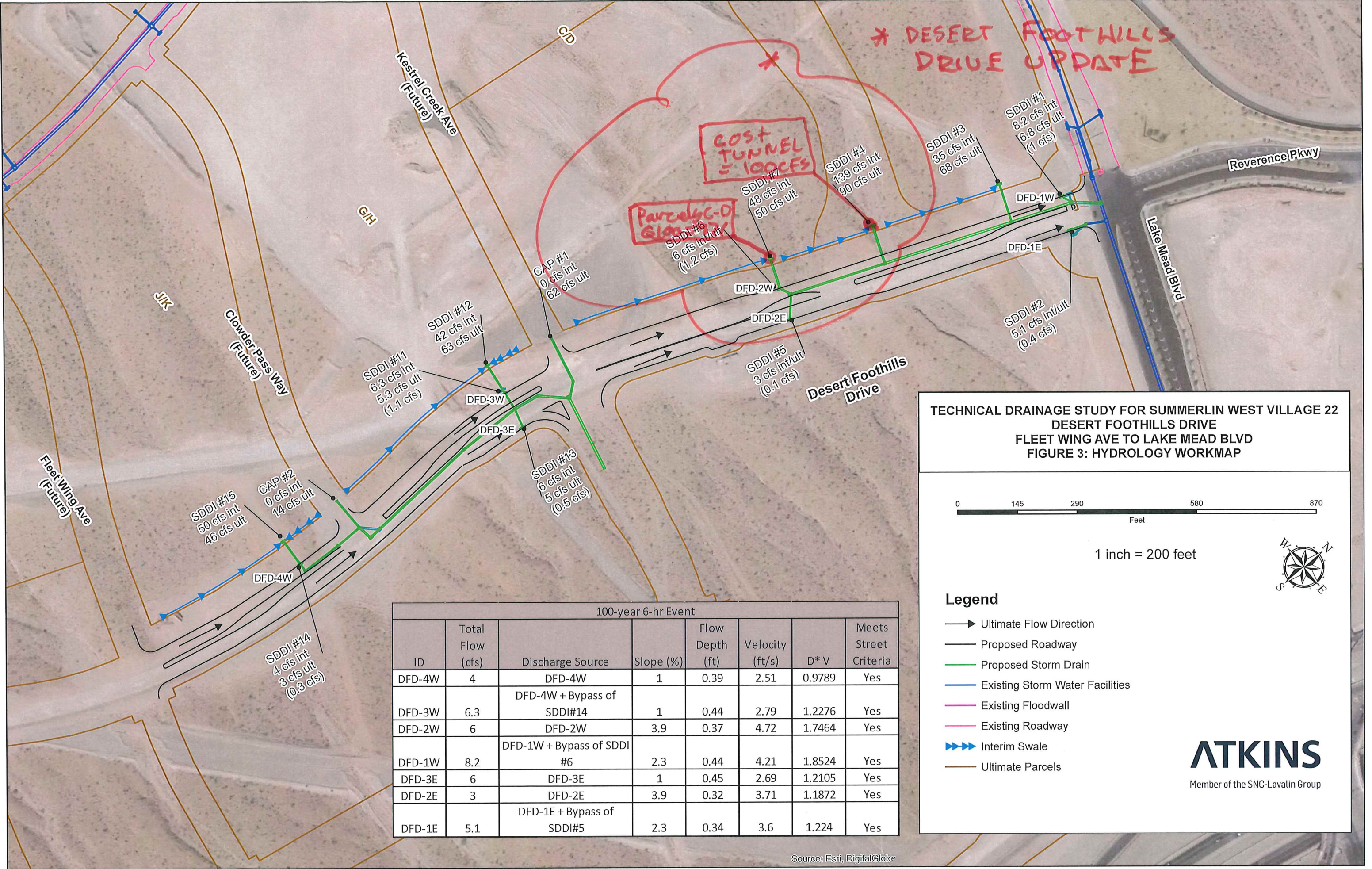


DESIGNED BY: N. BARCOS
DRAWN BY: L. MANACLAY
DATE: OCTOBER, 2019
CHECKED BY: J. HOBZ-NONE
JOB NO. 100060652
CLV 00-00000
24/32

REV.	DESCRIPTION	REVISIONS	
		BY	DATE



SUMMERLIN
SUMMERLIN VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
STORM DRAIN LATERAL PROFILES



TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVE TO LAKE MEAD BLVD
FIGURE 3: HYDROLOGY WORKMAP



1 inch = 200 feet



Legend

- Ultimate Flow Direction
- Proposed Roadway
- Proposed Storm Drain
- Existing Storm Water Facilities
- Existing Floodwall
- Existing Roadway
- Interim Swale
- Ultimate Parcels

100-year 6-hr Event							
ID	Total Flow (cfs)	Discharge Source	Slope (%)	Flow Depth (ft)	Velocity (ft/s)	D* V	Meets Street Criteria
DFD-4W	4	DFD-4W	1	0.39	2.51	0.9789	Yes
DFD-3W	6.3	DFD-4W + Bypass of SDDI#14	1	0.44	2.79	1.2276	Yes
DFD-2W	6	DFD-2W	3.9	0.37	4.72	1.7464	Yes
DFD-1W	8.2	DFD-1W + Bypass of SDDI #6	2.3	0.44	4.21	1.8524	Yes
DFD-3E	6	DFD-3E	1	0.45	2.69	1.2105	Yes
DFD-2E	3	DFD-2E	3.9	0.32	3.71	1.1872	Yes
DFD-1E	5.1	DFD-1E + Bypass of SDDI#5	2.3	0.34	3.6	1.224	Yes

Source: Esri, DigitalGlobe



Rick Read

From: Chris Zrinyi <czrinyi@rcinevada.com> on behalf of Chris Zrinyi
Sent: Wednesday, September 30, 2020 5:08 PM
To: Rick Read
Subject: FW: Falcon Crest Drainage Study
Attachments: DFD_TDS Update 1.pdf

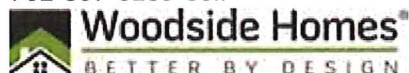
Thank you,
Chris Zrinyi

RCI Engineering
500 S. Rancho Dr Suite #17
Las Vegas, Nevada 89106
702-756-6694 (Cell)
702-998-2104 (Direct)

From: Scott Anderson [mailto:sanderson@woodsidehomes.com]
Sent: Wednesday, September 30, 2020 3:59 PM
To: Chris Zrinyi <czrinyi@rcinevada.com>
Subject: FW: Falcon Crest Drainage Study

Please see below and attached
thanks

Scott Anderson
Land Manager
Woodside Homes of Nevada, LLC
7895 West Sunset Road. #110
Las Vegas, Nv. 89113
702-889-7824 Office
702-807-6239 Cell



From: Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>
Sent: Wednesday, September 30, 2020 3:44 PM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>; Scott Anderson <sanderson@woodsidehomes.com>
Cc: Rose Carver <rose.carver@howardhughes.com>; Carl Anderson <carl.anderson@hhc-contractor.com>; Wilson, David D <David.Wilson5@atkinsglobal.com>; Anderson, Molly <Molly.Anderson@atkinsglobal.com>
Subject: RE: Falcon Crest Drainage Study

Vincent and Scott,

Dave is correct, the 68 cfs flow will be coming into the system in the current condition, until Village 27 is further developed.

We took this flow into account when we sized the Desert Foothills system. While the TDS shows ~50 cfs ultimate flow from Parcel D, we knew there was a big potential that Parcels C and D would get combined, so we internally ran the Parcel C/D combined flow (Q100=97CFS at SDDI#6) through the system to determine pipe sizes. The 54" pipes near the intersection of Desert Foothills and Lake Mead were sized for this flow. The Q100 flow that is shown at the COS stub (Q100=90cfs at SDDI#4) is the combination of the COS and the 68 cfs bypass through the tunnel.

Attached you will find the interim and ultimate condition exhibits for V22 Desert Foothills. I marked up the second page to show what ultimate design flows we used to size the system.

Please let me know if you have any questions or concerns.

Thank you,
Nic Barcos, PE
Senior Engineer, Civil

Atkins, member of the SNC-Lavalin Group
2270 Corporate Circle, Suite 200, Henderson, NV 89074-7755
Direct: +1 702 551 0379 | Main: +1 702 263 7275

From: Wilson, David D <David.Wilson5@atkinsglobal.com>
Sent: Tuesday, September 29, 2020 10:23 AM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Cc: Scott Anderson <sanderson@woodsidehomes.com>; Rose Carver <rose.carver@howardhughes.com>; Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>; Carl Anderson <carl.anderson@hhc-contractor.com>
Subject: RE: Falcon Crest Drainage Study

Vincent,

The Lake Mead pedestrian crossing is to basically have no storm water flowing through the crossing. As the storm drain system is designed and constructed further upstream, the flow in this particular wash is being diverted and no flow is intended to flow through the pedestrian crossing. As of now, the Kettle Ridge storm drain system (construction underway) is picking up significant flow in this particular wash just upstream of the pedestrian crossing. In fact, the Kettle Ridge storm drain system is picking up all the upstream flow except for an overflow amount of 68 cfs during the 100 year event. Smaller event flows will be picked up without the overflow and therefore not impacting the pedestrian crossing. Currently, the designs underway upstream do not have an approved drainage study therefore we not able to provide an approved drainage study to represent zero flow in the pedestrian crossing at this time.

David Wilson PE
Respect, Trust, Able

Atkins, member of the SNC-Lavalin Group
2270 Corporate Circle, Suite 200, Henderson, NV 89074
Direct: +1 (702) 551 0310 | Mob: +1 (702) 544 8872 | Main: +1 (702) 263 7275
Email: David.Wilson5@atkinsglobal.com

From: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Sent: Tuesday, September 29, 2020 9:24 AM
To: Carl Anderson <carl.anderson@hhc-contractor.com>; Barcos, Nicolas <Nicolas.Barcos@atkinsglobal.com>
Cc: Scott Anderson <sanderson@woodsidehomes.com>; Rose Carver <rose.carver@howardhughes.com>; Wilson, David D <David.Wilson5@atkinsglobal.com>
Subject: FW: Falcon Crest Drainage Study

Carl and Nic,

Can you please look into Scott's question below and get back to us?

Thanks.

From: Scott Anderson
Sent: Thursday, September 24, 2020 3:10 PM
To: Vincent Esposito <Vincent.Esposito@howardhughes.com>
Subject: FW: Falcon Crest Drainage Study

Vincent,

Have you had a chance to look into RCI's question

"Previous emails mentioned that the wash to the north of us was being revised to not accept offsite flows, so that the only storm flows in the wash would be generated by the wash area itself. Attached is a figure from the Atkins study showing 68 cfs will drain through the pedestrian tunnel into the wash. We can't find a drainage study that shows this flow being sent somewhere else. Can THHC provide us the drainage study update that shows no flow coming through the tunnel or should we plan for the 68 cfs coming through the tunnel. "

thanks

Scott Anderson
Land Manager
Woodside Homes of Nevada, LLC
7895 West Sunset Road. #110
Las Vegas, Nv. 89113
702-889-7824 Office
702-807-6239 Cell
 **Woodside Homes**
BETTER BY DESIGN

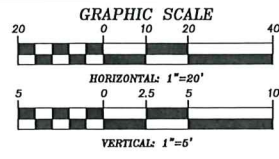
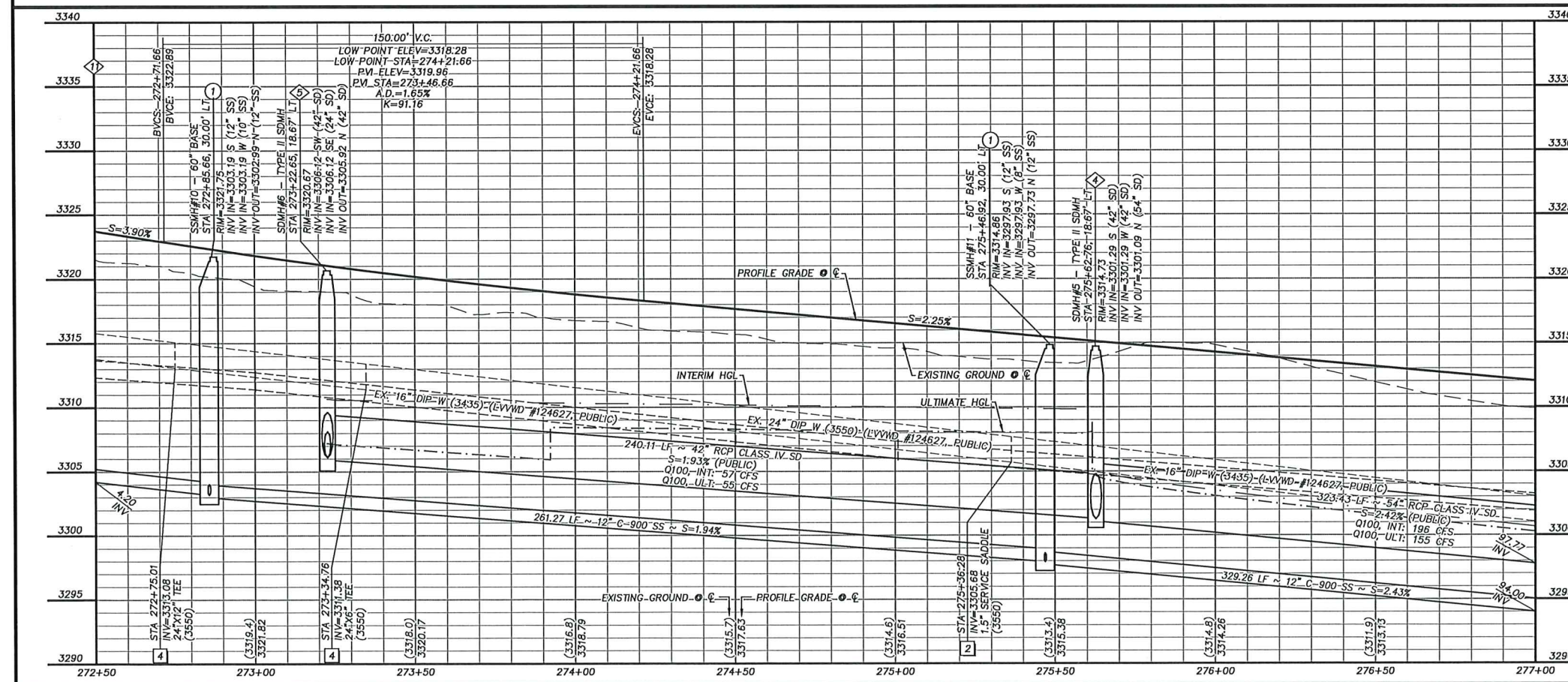
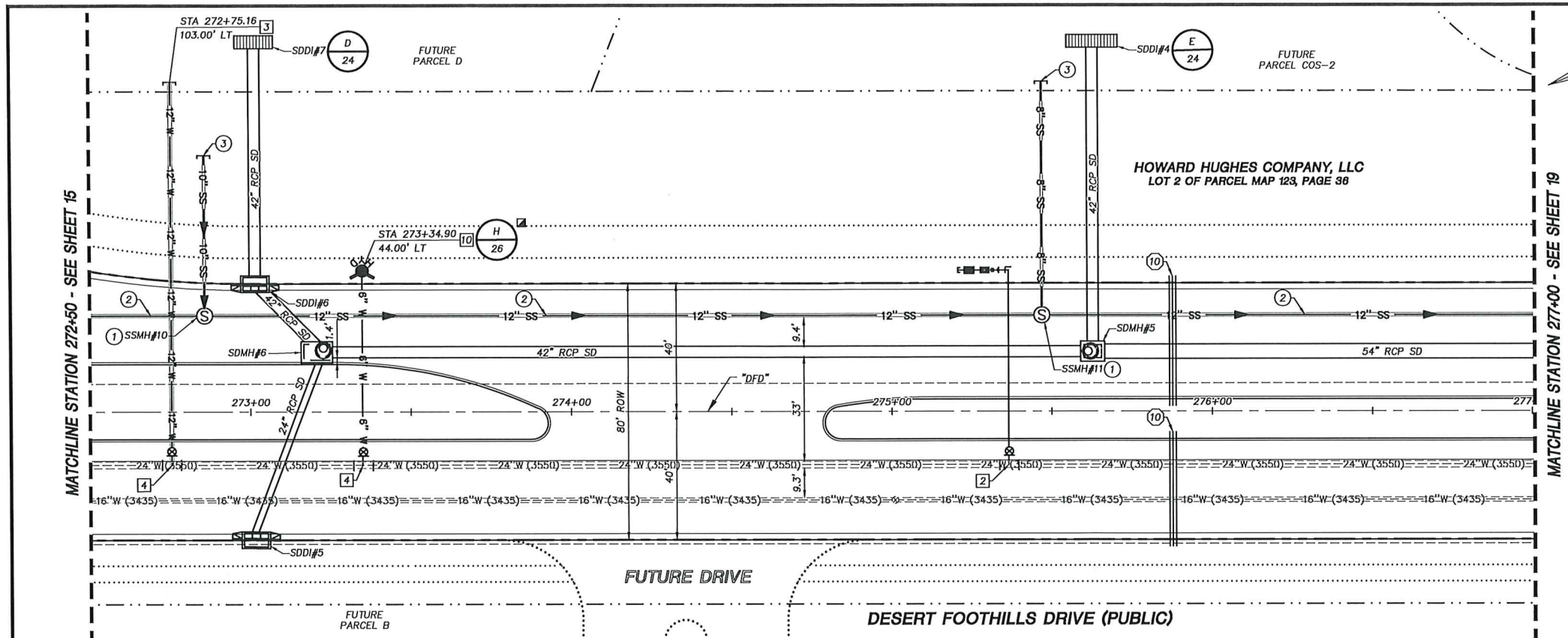
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Consider the environment. Please don't print this e-mail unless you really need to.



APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PROJECT NO. 136925 FIRST APPROVED DATE: _____

GRADING PLAN CERTIFICATION

PAUL BATES PE#18723 DATE _____
I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.
DS#5155A

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FIND US&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST

Call before you Dig

Underground

1-702-432-5300

Call before you Dig

Underground

1-800-642-2444

Call before you Dig

Underground

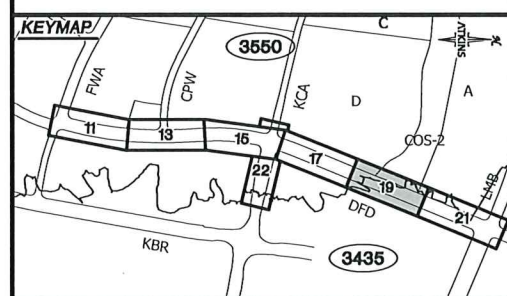
1-702-227-2929

- STORM DRAIN CONSTRUCTION NOTES**
- INSTALL STORM DRAIN. SEE SHEET 30 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 - INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 - INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 30)
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 - CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
 - CONSTRUCT "A" TYPE ISLAND CURB PER CCAUSD #219
 - FUTURE SIDEWALK BY OTHERS
 - CONSTRUCT CONCRETE SIDEWALK PER CCAUSD #234
 - CONSTRUCT CURB RAMP, TYPE A, PER NDOT STANDARD PLAN R-5.2.1 (A=B=6.5').
 - CONSTRUCT 0" FLUSH CURB
 - TRANSITION CURB FROM FULL HEIGHT (6") TO FLUSH (0")
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ATKINS

2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1-702-263-7275
Fax: +1-702-263-7200

SUMMERLIN

SUMMERLIN VILLAGE 22
DESERT FOOTHILLS DRIVE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY PLAN AND PROFILE
STA. 272+50 TO STA. 277+00

REV.	DESCRIPTION	DATE	APPROVAL

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMCAY
CHECKED BY: OCTOBER, 2019
DATE: 10/15/19
DRAWING NO. 19/32
VERT. 1'-20'

CLV 00-00000

Summerlin West Village 22

Kettle Ridge Drive (Street J)
Fleet Wing Avenue (Street G) to Lake Mead Boulevard

Scurry Bend Drive (Street N) Rough Grade
Fleet Wing Avenue (Street G) to Lake Mead Boulevard

September 11, 2019

Addendum #1

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM

DATE:

March 19, 2019

TO:

Land Development Services
Department of Building & Safety

FROM:

Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT:

Drainage Study for:

**Summerlin West V22 – Kettle Ridge Drive (Street J) and
Scurry Bend Drive (Street N) Street Improvements
(both from Lake Mead Blvd. to Fleet Wing Ave.)**

COPIES TO:

Atkins

Cross Streets:

Lake Mead Boulevard & Desert Foothill Drive

Howard Hughes Company, LLC

File Number:

F:\Depot\DSMemos\DS5156E.doc

Bart Anderson, P.E., DevCo

Parcel Number:

137-14-401-006 & 137-23-101-002

CCRFCD

Zoning Action:

N/A

FEMA Flood Zone

YES

NO

X

Proposed Storm Drain

YES

X

NO

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/16/2019	8/8/2019	Not Approved	\$400.00	3490122: \$400
2 nd Submittal	9/11/2019	9/25/2019	Not Approved	\$400.00	3563447: \$400
3 rd Submittal	10/16/2019	10/30/2019	Conditional Approval	\$400.00	3612958: \$400
4 th Submittal & CCRFCD	2/25/2020 & 3/5/2020	3/10/2020	Concurrence Recv'd	\$100.00	3755821: \$100
Supplement	3/18/2020	3/19/2020	See Comments Below	N/C	N/C
TOTAL FEES (LDDRS):				\$1,300.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

The following conditions are repeated until they are complete:

- The project proposes to build temporary drainage facilities, ie, berms/swales along the west side of *Scurry Bend Drive* and *Kettle Ridge Drive* and at the southern end of *Kettle Ridge Drive* for interim flood protection. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facility and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.



Sample Letter to
certify CD.pdf

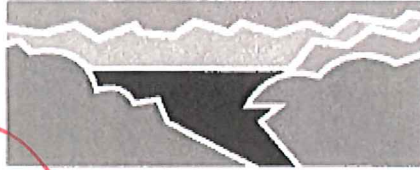
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

END OF REMARKS
ays

T/R/S: T20S/R59E/14
AREA K-14

REGIONAL FLOOD CONTROL DISTRICT



Steven C. Parrish, P.E.
General Manager/Chief
Engineer

BOARD OF DIRECTORS

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City of Boulder City

March 5, 2020

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

**DISTRICT CONCURRENCE: SUMMERLIN WEST V22- KETTLE RIDGE
DRIVE (STREET J) AND SCURRY BEND
DRIVE (STREET N) STREET
IMPROVEMENTS (BOTH FROM LAKE
MEAD BLVD. TO FLEET WING AVE.)
(DS5156C) (RFCD No. 20-12436)**

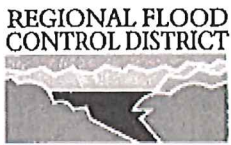
Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated July 16, 2019, Addendum No. 1 dated September 11, 2019, and Supplement No. 1 dated October 16, 2019 for above-mentioned project as submitted by ATKINS. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated October 30, 2019.

District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works with the following condition(s):

Note that per District's Policies and Procedures Manual, Section VIII.D.13 Uniform Regulations for the Control of Drainage, the lead Entity shall provide As-Built plans or record drawings to the District after completion and final inspection of such privately installed flood control facilities that have a regional flood control significance.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.



Mr. Oh Sang Kwon, P.E.

March 5, 2020

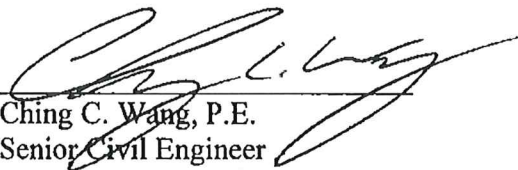
Page 2

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by ATKINS may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

STEVEN C. PARRISH, P.E.

General Manager/Chief Engineer

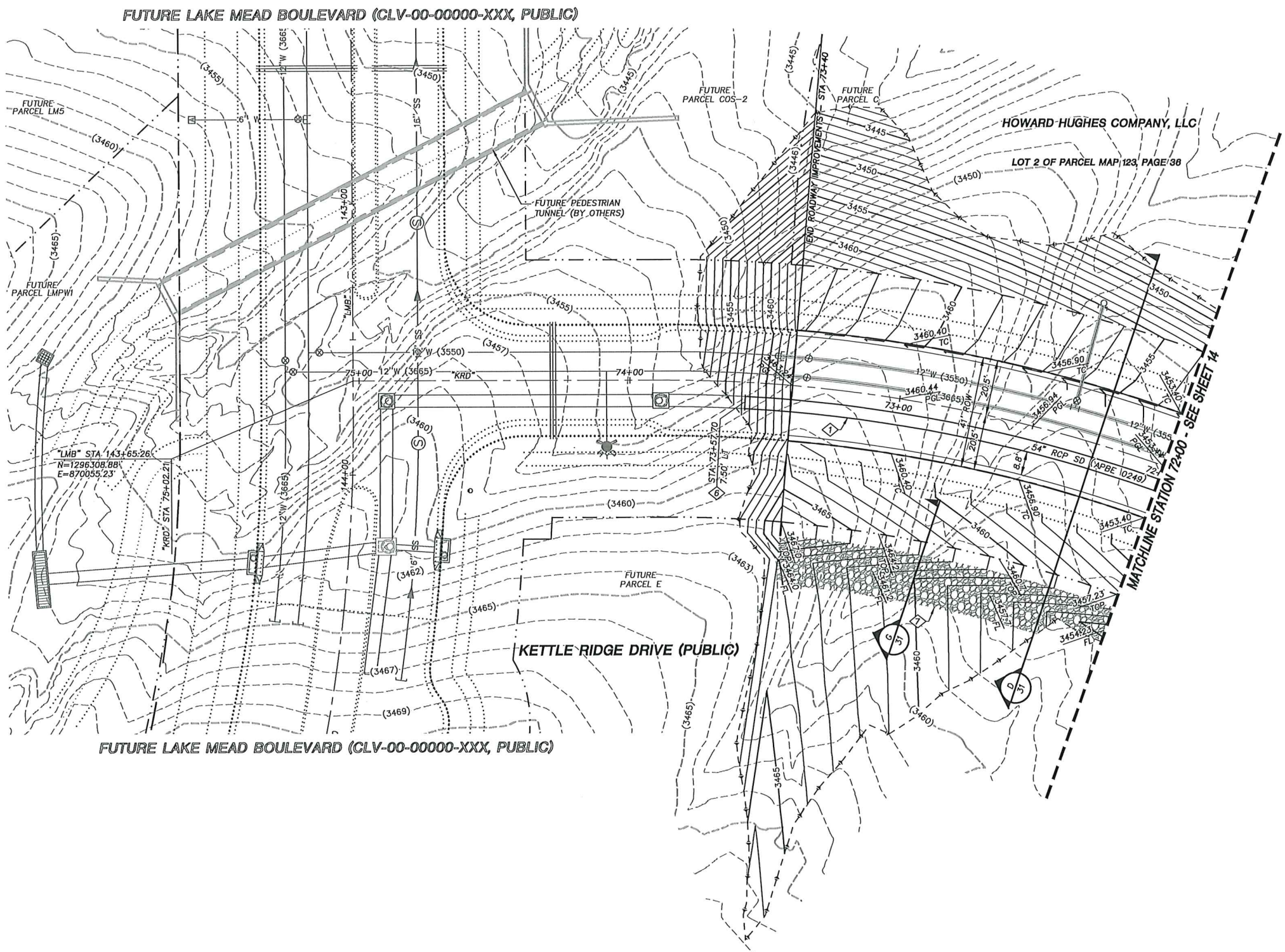
BY:


Ching C. Wang, P.E.
Senior Civil Engineer

CCW:sa

c: Molly M. Anderson, P.E., Atkins

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2020\L-20-12436as_built.doc



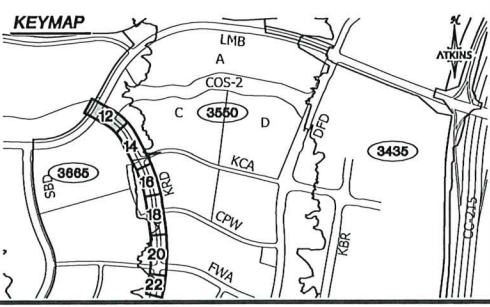
- STORM DRAIN CONSTRUCTION NOTES**
- 1. INSTALL STORM DRAIN. SEE SHEET 3 FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
 - 2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
 - 3. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
 - 4. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
 - 5. INSTALL NDOT TYPE 2 DROP INLET PER NDOT R-4.2.1 (SEE SHEET 29)
 - 6. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL (SEE SHEET 32)
 - 7. INSTALL RIP-RAP (D50=8", THICKNESS=16") PER DETAIL B ON SHEET 30
 - 8. INSTALL SD JUNCTION STRUCTURE
 - 9. DIRECT CONNECTION INTO RCB SEE SHEET 32 FOR DETAIL
 - 10. INSTALL TYPE I SD RISER PER CCAUSD #403.1
 - 11. INSTALL TYPE "CM" DROP INLET PER CCAUSD #421 & #422
 - 12. INSTALL PRECAST REINFORCED CONCRETE BOX PER NDOT STANDARD 502 AND 503 SEE SHEET 32 FOR RCB INFORMATION

REVISIONS		
REV.	DESCRIPTION	BY DATE

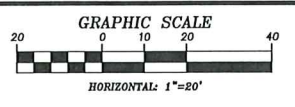
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: 702.263.7775
Fax: 702.263.7200

SUMMERLIN

SUMMERLIN VILLAGE 22
KETTLE RIDGE DRIVE (STREET J) - FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
SOURRY BEND DRIVE (STREET H) ROUGH GRADE - FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
ROADWAY GRADING PLAN
KETTLE RIDGE DRIVE STA. 72+00 TO END



UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.



GRADING PLAN CERTIFICATION

PAUL A. BATES PE#18723 DATE _____

CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY FOR THIS SITE ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

DS#5156A

BASIS OF BEARING

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

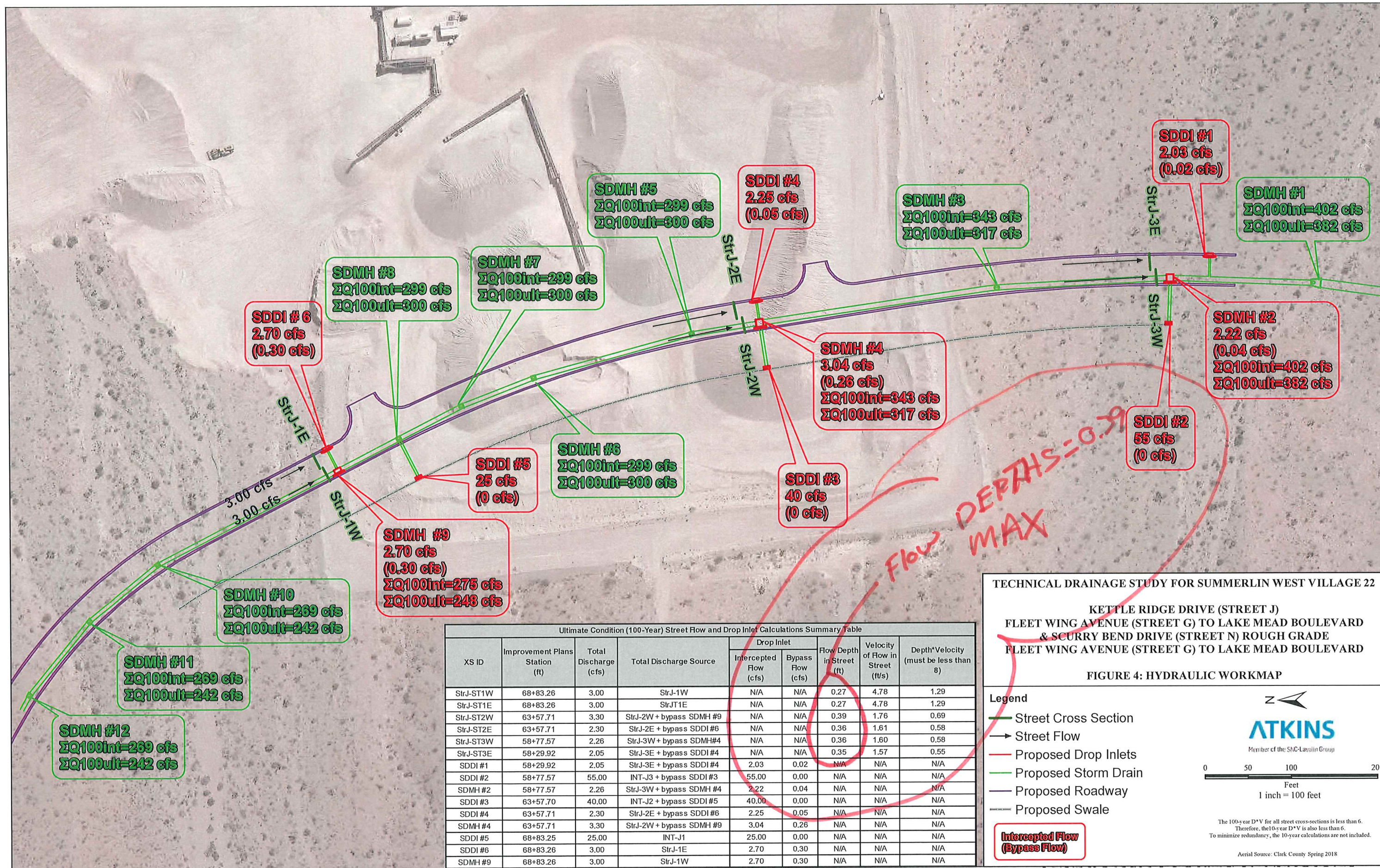
BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03



DESIGNED BY: N. BARCOS
DRAWN BY: O. QUASSANI
CHECKED BY: P. BATES
DATE: SEPTEMBER, 2019
DRAWING NO.: 12/89
JOB NO.: 100060655
CLV 00-00000



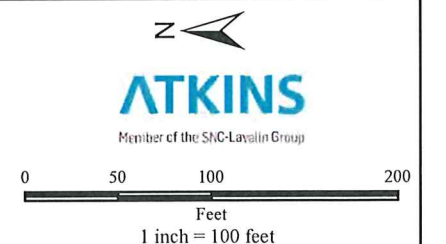


TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22

KETTLE RIDGE DRIVE (STREET J)
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD
& SCURRY BEND DRIVE (STREET N) ROUGH GRADE
FLEET WING AVENUE (STREET G) TO LAKE MEAD BOULEVARD

FIGURE 4: HYDRAULIC WORKMAP

Ultimate Condition (100-Year) Street Flow and Drop Inlet Calculations Summary Table								
XS ID	Improvement Plans Station (ft)	Total Discharge (cfs)	Total Discharge Source	Drop Inlet		Flow Depth in Street (ft)	Velocity of Flow in Street (ft/s)	Depth*Velocity (must be less than 8)
				Intercepted Flow (cfs)	Bypass Flow (cfs)			
StrJ-ST1W	68+83.26	3.00	StrJ-1W	N/A	N/A	0.27	4.78	1.29
StrJ-ST1E	68+83.26	3.00	StrJ-1E	N/A	N/A	0.27	4.78	1.29
StrJ-ST2W	63+57.71	3.30	StrJ-2W + bypass SDMH #9	N/A	N/A	0.39	1.76	0.69
StrJ-ST2E	63+57.71	2.30	StrJ-2E + bypass SDDI #6	N/A	N/A	0.36	1.61	0.58
StrJ-ST3W	58+77.57	2.26	StrJ-3W + bypass SDMH #4	N/A	N/A	0.36	1.60	0.58
StrJ-ST3E	58+29.92	2.05	StrJ-3E + bypass SDDI #4	N/A	N/A	0.35	1.57	0.55
SDDI #1	58+29.92	2.05	StrJ-3E + bypass SDDI #4	2.03	0.02	N/A	N/A	N/A
SDDI #2	58+77.57	55.00	INT-J3 + bypass SDDI #3	55.00	0.00	N/A	N/A	N/A
SDMH #2	58+77.57	2.26	StrJ-3W + bypass SDMH #4	2.22	0.04	N/A	N/A	N/A
SDDI #3	63+57.70	40.00	INT-J2 + bypass SDDI #5	40.00	0.00	N/A	N/A	N/A
SDDI #4	63+57.71	2.30	StrJ-2E + bypass SDDI #6	2.25	0.05	N/A	N/A	N/A
SDMH #4	63+57.71	3.30	StrJ-2W + bypass SDMH #9	3.04	0.26	N/A	N/A	N/A
SDDI #5	68+83.25	25.00	INT-J1	25.00	0.00	N/A	N/A	N/A
SDDI #6	68+83.26	3.00	StrJ-1E	2.70	0.30	N/A	N/A	N/A
SDMH #9	68+83.26	3.00	StrJ-1W	2.70	0.30	N/A	N/A	N/A



The 100-year D*V for all street cross-sections is less than 6.
Therefore, the 10-year D*V is also less than 6.
To minimize redundancy, the 10-year calculations are not included.

Aerial Source: Clark County Spring 2018

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST ISSUE. THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA, NEVADA, LATEST REVISED EDITION" THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA, LATEST EDITION, AND THE "UNIFORM BUILDING CODES AND LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHALL BE DETERMINED BY RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE NOT TO BE MOVED OR PLACED IN A MANNER WHICH WOULD OBSTRUCT OR INTERFERE WITH THE SERVICE. UTILITIES SHALL NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION. HE SHALL BE RESPONSIBLE TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT FROM SUCH UTILITIES.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE "W" CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AS PAVEMENT TO BE ONE- HALF" INCH (1/2") ABOVE UP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED WITHIN 10 BUSINESS DAYS.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 335. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE, AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. ALL TRANSITIONS SHALL BE APPROVED BY THE CITY ENGINEER.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY GEOTEK INC., PROJECT 13735-VL, DATED 10/10/2017, APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES LOCAL ADJUSTMENT.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS, ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625-380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF THE PROJECT AND PROVIDED WITH PROTECTIVE DEVICES UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER. WALL NOTES:
16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS, FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE WALL DETAIL AND INSPECTION REPORT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, ANSWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER OR REFLECTOR, THE CONTRACTOR SHALL PROVIDE THE DEVICES AND A VERBAL REPORT OF THE DEVICES' INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO THE CONSTRUCTION OF THE SANITARY SEWER AND STORM DRAIN. THE MAP(S) SHALL INCLUDE THE LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN AND AT THE CONNECTION TO A DROP INLET. THE CONNECTION OF SEWER LATERALS TO THE STORM DRAIN SHALL BE SHOWN. THE MAP(S) SHALL ALSO INCLUDE THE PUBLIC RIGHT-OF-WAY, AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES. THE COORDINATES SHALL BE BASED ON THE SANITARY SEWER AND STORM DRAIN COORDINATES PROVIDED BY THE U.S. SURVEY. STORM DRAIN MAP(S) MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINITY OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED COORDINATE FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCLOSED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING APPLIED TO THE SIGN FACE. ALL EXISTING TRAFFIC SIGNS, STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.

1. ALL WORK SHALL BE DONE STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS WATER DISTRICT'S-APPROVED PRODUCTS LISTS ARE ALLOWED TO BE INSTALLED
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [CFC § 105.7.12]
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [CFC § 3310, § 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [CFC § 507.5.7.3]
6. PRIOR TO UNDERGROUNDING INSPECTIONS, PRESSURE OR FLOW VERIFICATION OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [CFC § 106.3]
7. ALL ON-SITE UNDERGROUND WATER MAINS AND WATERLINES SHALL BE U.L.I.S.TED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [CFC § 507.2.1, NFPA 24]
8. FINAL WATERSIDE HYDRANT PAIDS, PROTECTION FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION [CFC § 507]

- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S-APPROVED PRODUCTS LISTS ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FOR LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [FC § 105.7.12]
4. ONCE THE UNDERGROUND PIPING IS INSTALLED, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [FC § 3310, § 3312]
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET AND A RED REFLECTIVE MARKER AT THE END OF THE FIRE APPARATUS ACCESS ROAD.
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [FC § 106.3]
7. ALL UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. [FC § 507.2.1, NFA 24]
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. [FC § 507]
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. [FC § 507.5.1]
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [FC § 507]
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [FC § C102]
- * RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPINKLERED.
 - * COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 SPACING, TO PROVIDE PROTECTION FOR UNPAVED STREETS AND STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [FC § C102.8]
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERMETER OF THE RADIUS OF A CUL-DE-SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [FC § C102.12]
15. A MINIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300FT, AS MEASURED BY AN APPROVED ROUTE. [FC § C102.4]
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [FC § C102.7]
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200FT. [FC § C102.6]
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [FC § C104]
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [FC § 503.2.3]
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 55 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [FC § 503.2.7, § 503.2.8]
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [FC § 503.2.4]
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INCS. [FNS §503.2.1]
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES, NOT LESS THAN 32 FT WIDE, FLOW LINE TO FLOW LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD, NOT LESS THAN 24 FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE, FIRE LINES THROUGH PARKING LOTS SHALL BE 32 FT WIDE. [FC § 503.2.5]
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [FC § 503.1.1]
25. APPROX. SHALL BE PROVIDED WITH A MINIMUM OF 100 OR MORE DWELLING UNITS, LOT(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT, COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. [FC § 503.1.2]
26. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. [FC § 503.2.5]
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE FIRE LANE. FIRE LANE LAYOUTS SHALL BE MARKED WITH SIGNS AT 100 FT INTERVALS IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEAR RESISTANT PAINT IN ADDITION TO THE SIGNS. [FC § 503.3]
28. EXISTINGLY CONTROLLED ACCESS SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM.SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE FC § 503.6 AND IFC APPENDIX M.

IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION, ADEQUATE SHORING SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT, ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED: HORIZONTAL
VERTICAL
A. PAVEMENT AREA SUBGRADE 0.1' +0.0' TO -0.1' SEE SOILS REPORT
B. FILL AREAS 0.5' +0.0' TO -0.1' SEE SOILS REPORT
C. TO -0.1' SEE SOILS REPORT COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.
7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION, ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED RIGHT-OF-WAY DURING THE CONSTRUCTION OF THIS PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS OWNED PROPERTY THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER/ENGINEER SHALL PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER, TO MAINTAIN THE CONSTRUCTION OF THE PROJECT AND THE ROADWAY.

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1. THE OWNER, SITE DEVELOPER/CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS-OF-WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SEDIMENT SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITIES IN THAT PORTION OF THE SITE HAVE TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY: REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NV100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPs WEEKLY. THE CONTRACTOR SHALL REPORT ANY VIOLATIONS OF THE PERMIT TO THE CITY OF LAS VEGAS. THE CONTRACTOR MAY UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF WORK DURING DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NV100000, SECTION III.A.5.
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION
GENERAL NOTES

1. IN THE EVENT OF NATURAL DISASTERS EMERGENCIES CALL 911 AND 1-877-860-6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS
3. ANY DEVIATION FROM SPECIFIED CLEARANCES SHALL BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
4. FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION
5. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

CAUTION: HIGH PRESSURE GAS!!

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING
OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

DATE _____

ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.

1. CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN THE LATEST EDITION OF THE STANDARD SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "C" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE INCH PER FEET OF SPAN. ANY DEFLECTION PLANS AT ANY LOCATION, SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE

LVVWD PROJECT # _____ - _____
(REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD, FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (702-258-7171) TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB CUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2000 EDITION OF THE UDACS.
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 702-258-3152 OR 702-258-3802. TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE SHUTDOWN IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO PERFORMANCE. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACING SHALL BE PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION, OF ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.
15. NO LEAD COMPLIANCE NOTE:
TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER GRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

L.L. MORGAN VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVISES

ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA," LATEST EDITION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.
3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4. ALL STREET LIGHTING CONDUITS SUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE, WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB. IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WHEN THE ENDS ARE TO BE LEFT OPEN TO THE STATE OF NV.
5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEFD PRIOR TO ANY PRE-FINAL INSPECTION. THE ASBUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE BLOCK. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
8. IT SHALL BE ASSUMED THAT THE ABSENCE OF ANY EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS AGREEMENT. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR THE COST OF THE SUPPLY OF POWER AND/OR THE COST ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP OF THE STREET LIGHTS TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHTS AND/OR SERVICE S INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL NECESSARY OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEFD) AT (702) 229-6331.

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

Call **011** **FAST**

811 **Call**
before you dig



OR

-800-642-2444 | **1-702-452-5500**
FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

**CALL BEFORE
YOU DO
OVERHEAD**

-702-227-2929

EXISTING	PROPOSED	DESCRIPTION
		ROW OR PROPERTY LINE EASEMENT LINE CENTERLINE CURB
		VALLEY GUTTER
		EDGE OF PAVEMENT
		SIDEWALK
		SIDEWALK RAMP
		DRIVEWAY
		SAWCUT LINE
		RETAINING WALL
		FLOOD WALL
		WROUGHT IRON VEHICULAR
		WROUGHT IRON PEDESTRIAN
		INDEX CONTOURS
		INTERMEDIATE CONTOURS
		ROUGH GRADE INDEX CONTOUR
		ROUGH GRADE INTERMEDIATE CONTOUR
		CUT OR FILL SLOPE
		CUT AND FILL LINE
		LOT NUMBER
		FF AND PAD ELEVATION
		GRADE SLOPE
		SPOT ELEVATION
		SWALE LINE
		LOT DIMENSION
		SIGHT VISIBILITY ZONE
		WATERLINE MAIN AND SIZE
		FIRE HYDRANT
		WATER METER AND SERVICE LATERAL
		WATER VALVE
		WATER FITTINGS
		WATER LINE REDUCER
		WATER CAP WITH WATER BLOW OFF ASSEMBLY
		IRRIGATION SLEEVE
		PRESSURE REDUCING VALVE
		REDUCED PRESSURE PRINCIPLE ASSEMBLY
		SEWERLINE MAIN AND SIZE
		SEWERLINE MANHOLE
		SEWERLINE CAP
		SEWER LATERAL
		BACK WATER VALVE
		100W HPS STREET LIGHT
		250W HPS STREET LIGHT
		400W HPS STREET LIGHT
		STREET LIGHT CONDUIT AND 4" FIBER OPTIC CONDUIT PULLBOX
		REFLECTIVE FIRE HYDRANT
		STORM DRAIN MAIN AND SIZE
		ROCK RIP RAP
		STORM DRAIN MANHOLE
		STORM DRAIN DROP INLET

AGG	AGGREGATE	F	FINISH GRADE	R	RIGHT OR RADIUS
ASP	ASPHALTIC CONCRETE	FG	FLOW LINE	R/W	RIGHT-OF-WAY
ANG	ANGLE POINT	FUT	FUTURE	S	SANITARY SEWER
BC	BACK OF CURB	FL	FLUSH	S, SS	SEWER
BE	BEHIND STREET IMPROVEMENTS	FL-G	FLASTIC GAS	SL	SEWER LATERAL
BVC	BEGINNING OF VERTICAL CURVE	GB	GRADE BREAK	SW	SIDEWALK
BENCH MARK	BENCH MARK	GH	HIGH POINT	SW	SQUARE FOOT
BDRY	BOUNDARY	HDP	HIGH DENSITY POLYETHYLENE	SO FT, SF	SQUARE YD, SY
CATV	CABLE TELEVISION	HSI	HALF STREET INTERSECTION	SD	STORM DRAIN
CC	CENTERLINE	HPPP	HIGH PERFORMANCE POLY PROPYLENE	STD	STANDARD
CRUNSD	CLARK COUNTY UNIFORM STANDARD	INT	INTERSECTION	STL	STREET LIGHT
		INVERT	INVERT	TEL	TELEPHONE
CWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	TF	TOP OF CURB
		LF	LINEAR FEET	TP	TOP OF FOOTING
CMH	CENTER OF MANHOLE	LMH	LINEAR MANHOLE	TRC	TOP OF CURB
CO	CLEAN OUT, SEWER	MH	MANHOLE	TRC	TOP OF RETAINING WALL
COMM	COMMERCIAL	MAX	MAXIMUM	TS	TRAFFIC SIGNAL
CONC. PCC	CONCRETE	MIN	MINIMUM	TSI	TRAFFIC SIGNAL INTERCONNECT
CONC. CUBIC YD	CONCRETE OR CONSTRUCT CUBIC YARD	NTS	NOT TO SCALE	TRANS	TRANSITION
CU FT, CF	CUBIC FEET	ON	ON CENTER	TYP	TYPICAL
	CURB CURVE	PMT	PAVEMENT	UG	UNDERGROUND
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS	POINT	POINT OF INTERSECTION	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
		PC	POINT OF REVERSE CURVE	VAR	VARIABLE
DIA	DIAMETER	PT	POINT OF TANGENCY	VERT	VERTICAL
DRIVWAY	DRIVEWAY	PP	PORTLAND CEMENT CONCRETE	VAL	VALLEY
DI	DRAINAGE	PUB	PUBLIC UTILITY EASEMENT	VC	VERTICAL CURVE
ESMT	EASEMENT	PVC	POLYVINYL CHLORIDE	VG	VALLEY GUTTER
ESI	END STREET IMPROVEMENTS	PP	POWER POLE	WCP	WITRIFIED CLAY PIPE
ES	EDGE OF PAVEMENT	P	POWER	WTR	WATER
ELEC	ELECTRIC	PL	PROPERTY LINE	WL	WATER LATERAL
		PROP	PROPOSED		

AGG	AGGREGATE	F	FINISH GRADE	R	RIGHT OR RADIUS
ASP	ASPHALTIC CONCRETE	FG	FLOW LINE	R/W	RIGHT-OF-WAY
ANG	ANGLE POINT	FUT	FUTURE	S	SANITARY SEWER
BC	BACK OF CURB	FL	FLUSH	S, SS	SEWER
BE	BEHIND STREET IMPROVEMENTS	FL-G	FLASTIC GAS	SL	SEWER LATERAL
BVC	BEGINNING OF VERTICAL CURVE	GB	GRADE BREAK	SW	SIDEWALK
BENCH MARK	BENCH MARK	GH	HIGH POINT	SW	SQUARE FOOT
BDRY	BOUNDARY	HDP	HIGH DENSITY POLYETHYLENE	SO FT, SF	SQUARE YD, SY
CATV	CABLE TELEVISION	HSI	HALF STREET INTERSECTION	SD	STORM DRAIN
CC	CENTERLINE	HP	HIGH PERFORMANCE POLY PROPYLENE	STD	STANDARD
CUNSSD	CLARK COUNTY UNIFORM STANDARD	INT	INTERSECTION	STL	STREET LIGHT
		INVERT	INVERT	TEL	TELEPHONE
CWCRD	CLARK COUNTY WATER RECLAMATION DISTRICT	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	TF	TOP OF CURB
		LEFT	LEFT	TM	TOP OF MANHOLE
CMH	CENTER OF MANHOLE	LF	LINEAR FEET	TOC	TOP OF CURB
CO	CLEAN OUT, SEWER	MH	MANHOLE	TOC	TOP OF FOOTING
COMM	COMMERCIAL	MAX	MAXIMUM	TRC	TRUCK CURB
CONC. PCC	CONCRETE	MIN	MINIMUM	TS	TOP OF RETAINING WALL
CU	CUBIC YD	NTS	NOT TO SCALE	TS	TRAFFIC SIGNAL
CU FT, CF	CUBIC FEET	ON	ON CENTER	TSI	TRAFFIC SIGNAL INTERCONNECT
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS	PMT	PAVEMENT	TRANS	TRANSITION
		POINT	POINT OF INTERSECTION	TOP	TOP OF WALL
		PC	POINT OF REVERSE CURVE	TYP	TYPICAL
		PERV	PERMEABLE CURVE	UG	UNDERGROUND
		PT	POINT OF TANGENCY	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
DIA	DIAMETER	PP	PORTLAND CEMENT CONCRETE	VAR	VARIABLE
DRWAY	DRIVEWAY	PU	PUBLIC UTILITY EASEMENT	VERT	VERTICAL
DI	DROP INLET	PVC	POLYVINYL CHLORIDE	VG	VALLEY
DSMT	DRAINAGE EASEMENT	PW	POWER POLE	VAL	VALLEY CUTTER
ESI	END STREET IMPROVEMENTS	PI	PROPERTY LINE	WCL	WITRIFIED CLAY PIPE
ES	EDGE OF PAVEMENT	PROP	POINT OF CONNECTION	WTR	WATER
EL	ELECTRIC	PROPOSED	PROPOSED	WL	WATER LATERAL

DESCRIPTION	PUBLIC	PRIVATE
4 INCH ASPHALTIC CONCRETE PAVING	- SY	8,575 SY
1/2 INCH GRAVEL	- CY	1,550 CY
18 INCH & GUTTER (24-INCH)	- LF	1,610 LF
18 INCH & GUTTER (30-INCH)	- LF	3,385 LF
TYPE ISLAND CURB	- LF	247 LF
18 INCH VALLEY GUTTER	- SF	3,906 SF
18 INCH CONCRETE SIDEWALK	- SF	2,232 SF
18 INCH CONCRETE SIDEWALK	- SF	11,651 SF
18 INCH WALK UNDERDRAIN	- EA	- EA
18 INCH WATER METER	- EA	- EA
18 INCH IRRIGATION METER WITH 1" RPPA	- EA	- EA
18 INCH C/S/GAS/PHONE/CABLE SERVICE TO LOTS	- EA	- EA
18 INCH VEY MONUMENTS	- EA	- EA
18 INCH RAMPS	- EA	9 EA
18 INCH SEWER LATERAL	- LF	- LF
18 INCH PVC SEWER MAIN	- LF	- LF
18 INCH C-900 SEWER MAIN	- LF	- LF
18 INCH SEWER MANHOLES	- EA	- EA
18 INCH WATER VALVES	- EA	- EA
18 INCH SEWER LATERAL	- LF	- LF
18 INCH PVC WATER MAIN	- LF	- LF
18 INCH PVC WATER MAIN	- LF	- LF
18 INCH PVC WATER MAIN	- LF	- LF
18 INCH DIP WATER MAIN	- LF	- LF
18 INCH HYDRANT	- EA	- EA
18 INCH 1/2 INCH STANDARD (STD. BASE)	- EA	- EA
18 INCH 1/4 INCH STREET LIGHT CONDUIT	- LF	- LF
18 INCH 200 AMP SERVICE PEDESTAL	- EA	- EA
18 INCH STREET SIGNS -STAND ALONE	- EA	- EA
18 INCH PULLBOX	- EA	- EA
18 INCH 601 BARRICADE (SFT)	- EA	- EA
18 INCH IRRIGATION METER WITH 1" RPPA	- EA	- EA

8-INCH STORM DRAIN		-	LF
4-INCH STORM DRAIN	294	LF	-
8-INCH STORM DRAIN	265	LF	-
8-INCH STORM DRAIN	-	LF	-
8-INCH SD MANHOLE (>6')	4	EA	-
8-INCH SD MANHOLE (>5')	3	EA	-
5-FOOT TYPE CM2 DROP INLET	-	EA	-
5-FOOT TYPE CM2 DROP INLET	-	EA	-
5-FOOT TYPE CM2 DROP INLET	1	EA	-
5-FOOT TYPE CM2 DROP INLET	15	EA	-
5-FOOT TYPE CM2 DROP INLET	1	EA	-
5-FOOT TYPE CM2 DROP INLET	5	EA	-
2"x12" JENSEN PRECAST INLET	-	EA	-
IP RAP (050=6")	-	CY	63
BANDON PRIVATE RCP	-	LF	-
WROUGHT IRON FENCE	-	SF	-

NOTE:
THIS QUANTITY ESTIMATE IS FOR BONDING PURPOSES ONLY.
CONTRACTOR TO DETERMINE INDEPENDENT ESTIMATIONS.

ITY OF LAS VEGAS BENCHMARK, MONUMENT ID
LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

OUTH 89°51'25" EAST, BEING THE BEARING OF THE
OUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH,
ANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN
VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF
BOOK 159, PAGE 50 OF PLATS, OFFICIAL
RECORDS, CLARK COUNTY, NEVADA.

NONE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

FAST

 **Call**
before you
UnderGround
1-702-432-5300
FREWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

**CALL BEFORE
YOU DO
OVERHEAD**



1-702-227-2929

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH BRIDGES, ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN A PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS, THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION
AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY
UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION
DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

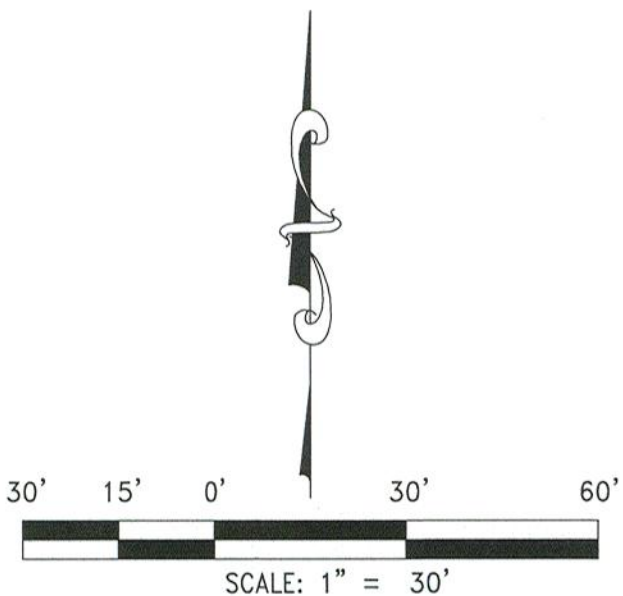
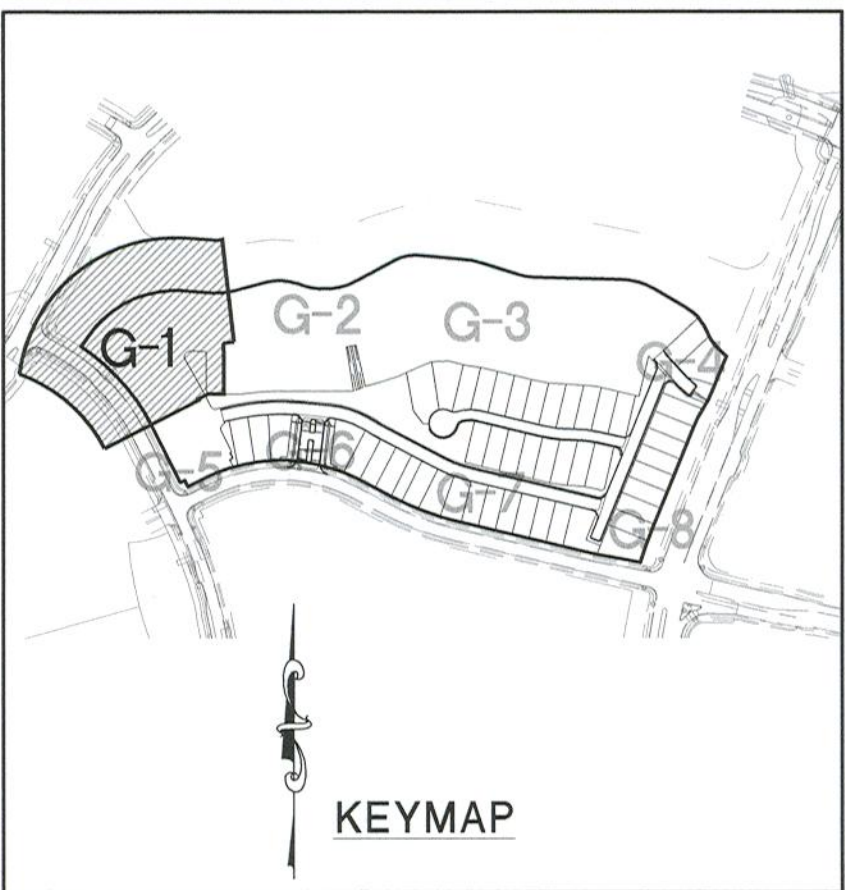
NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119.68 CU YD
NET FILL: 47.402 CU YD
10. SEE DETAIL 56/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- ON CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4 ON SHEET D-1
- CONSTRUCT "R" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S1
- CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-6
- CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD #219
- CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 2 GRATES
- CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 4 GRATES
- CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- CALL BOX
- CONSTRUCT ELECTRICALLY CONTROLLED ACCESS GATES
- INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.51 SHEET D-3 OF 3
- CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- CONSTRUCT DEPRESSIONED CURB PER DETAIL D-3
- INSTALL RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- CONSTRUCT STRUCTURAL CULVERT PER DETAIL 38 SHEET D-2
- CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG #5-75

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

REVISION		DATE	BY	APP'D
1		October 27, 2020		

DATE: October 27, 2020 HORIZ. SCALE: 1"=30' VERT. SCALE: N/A DRAWN BY: DU DESIGNED BY: MJD CHECKED BY: CRZ APPROVED BY: CRZ PROJECT #: 4350.00010	Woodside Homes® BETTER BY DESIGN
RCI ENGINEERING 300 SOUTH LAS VEGAS, NV 89106 PH/352.445.0861 www.rciengine.com	

IMPROVEMENT PLANS

FALCON CREST

SUMMERLIN V22 PARCELS C AND D UNIT 1

NEVADA

CITY OF LAS VEGAS

GRADING PLAN (SHEET 1 OF 8)

10-28-20

DRAWING

G-1

SHT 3 OF 21

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call
811

FAST

Call
before you
UnderGround

1-702-432-5300

FREWAY AND ARTERIAL

**CALL BEFORE
YOU DO
OVERHEAD**

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

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ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL
WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT.
APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE
GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH
ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT
POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY
FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH
CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY
PUBLIC OR PRIVATE STREET RIGHT-OF-WAY. THIS DOES
NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL
IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE
ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING
PERMIT APPLICATION."

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

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AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY
UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION
DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

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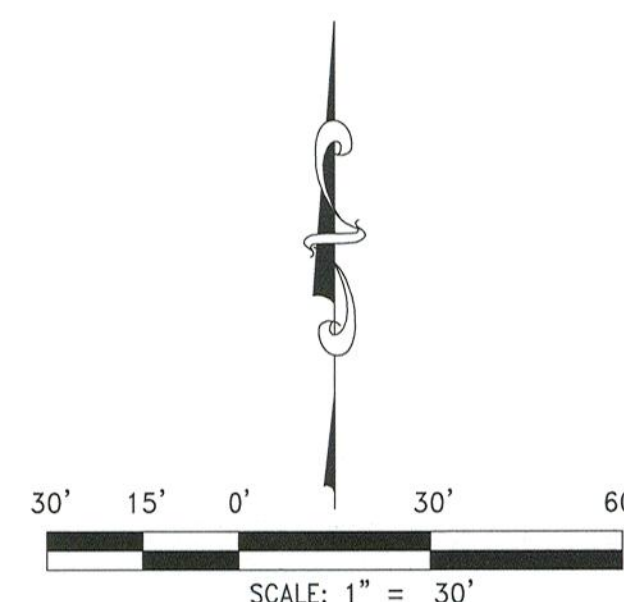
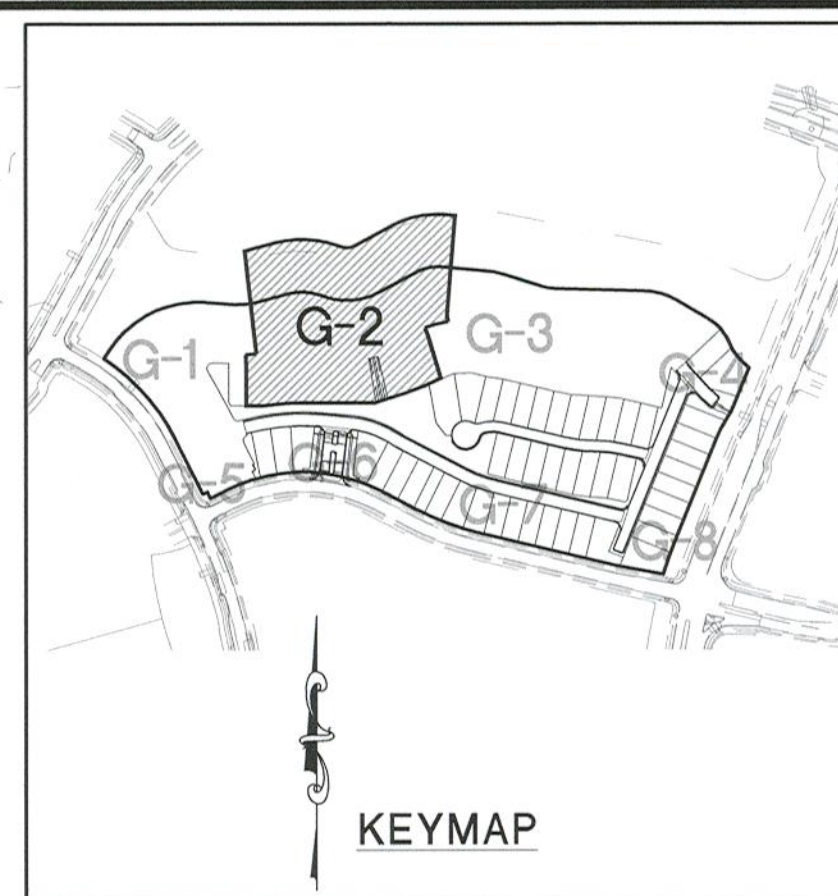
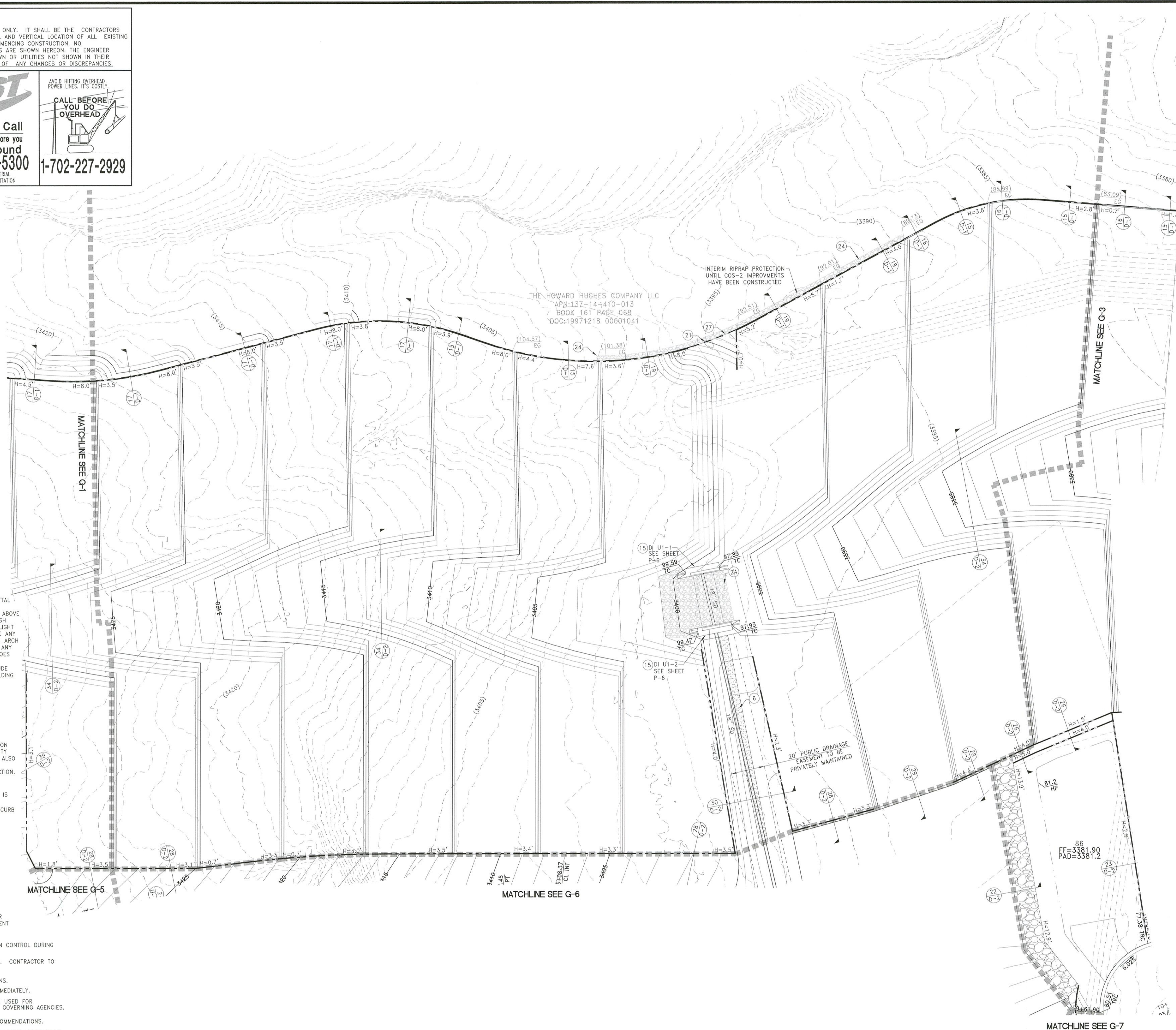
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ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

SEWER EASEMENT NOTE
NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

ENGINEERS' NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE (3) GRASSES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119.683 CY
NET FILL: 47.402 CY
10. SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER DRAINAGE MANAGEMENT NOTES REFER TO SHEET N-1



- 1) CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4 ON SHEET D-1
- 2) CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-4
- 3) CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4) CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217 51
- 5) CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6) CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 7) CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE I)
- 8) CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 9) CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- 10) CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-8
- 11) CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD #219
- 12) CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 2 GRATES
- 13) CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 4 GRATES
- 14) CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- 15) CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- 16) CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- 17) CALL BOX
- 18) CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- 19) INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- 20) CONSTRUCT 6' HIGH RIPRAP ION FENCE AND/OR GATES PER CCAUSD 425.1 SHEET S3 OF 3
- 21) CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- 22) CONSTRUCT PAVERS PER DETAIL 38 SHEET D-2
- 23) CONSTRUCT DEPRESSIONED CURB PER DETAIL 41 SHEET D-3
- 24) INSTALL RIPRAP D50=6" THICKNESS=12"
- 25) CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- 26) CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- 27) CONSTRUCT 6' HIGH WROUGHT ION FENCE AND/OR GATES
- 28) CONSTRUCT SIDEWALK RAMPS USING ARMOR LITE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE I)

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

REV	DESCRIPTION	BY	APPD	DATE
	DATE: October 27, 2020			
	HORIZ. SCALE: 1"=50'			
	VERT. SCALE: N/A			
	DRAWN BY: DU			
	DESIGNED BY: MJD			
	CHECKED BY: CRZ			
	APPROVED BY: CRZ			
	PROJECT #:			
	4320.0010.			

Woodside Homes®
BETTER BY DESIGN

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.653.0800 FAX#702.653.0801

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1
GRADING PLAN (SHEET 2 OF 8)

DRAWING

G-2

SHT 4 OF 21

[illegible]

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

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FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

1-702-227-2929

BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

BUILDING PERMIT NOTE

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT. APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN THE STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

FLOOD ZONE NOTE

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

SURVEY MONUMENT NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION
AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY
UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION
DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

SIGHT VISIBILITY ZONE

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

ENGINEERS NOTES

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE 2% MINIMUM GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT, PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 08, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119.865 CY
NET FILL: 47.403 CY
10. SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

NOTE

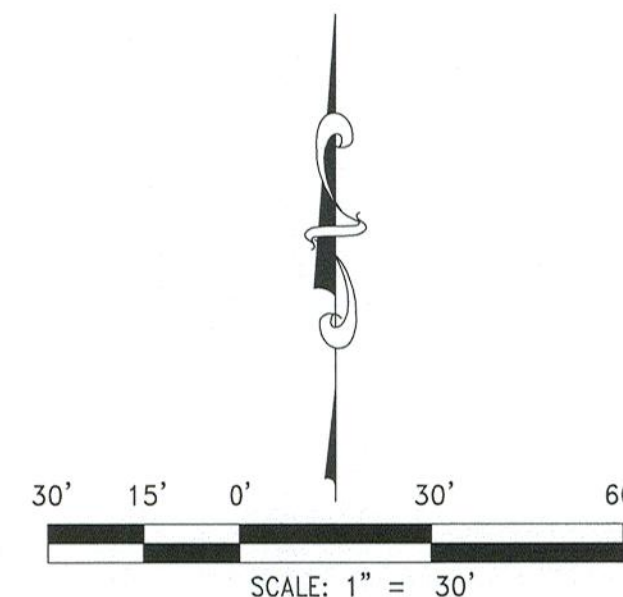
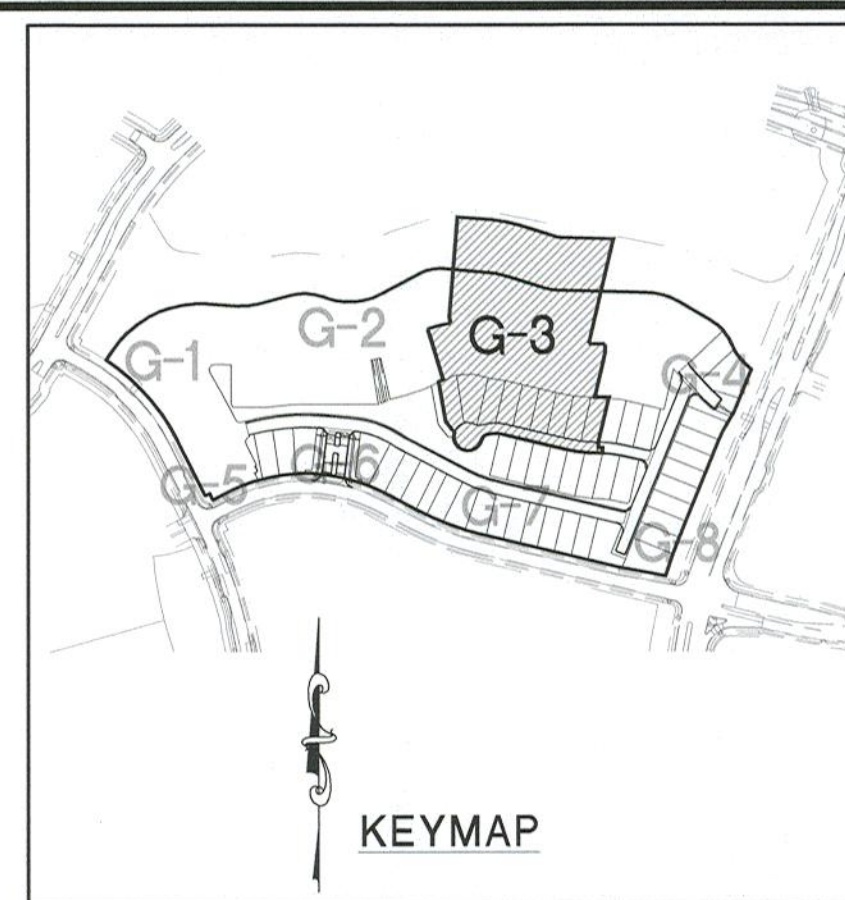
ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

NOTE

ALL PRIVATE STREETS ARE P.O.E., PUBLIC
SEWER EASEMENTS AND PUBLIC DRAINAGE
EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA

SEWER EASEMENT NOTE

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



CONSTRUCTION NOTES

- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
ON SHEET D-1
- 2 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-412
- 3 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- 5 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6 CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 7 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- 8 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 9 CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO
"R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- 10 CONSTRUCT 8' CROSS CURB PER SUMMERLIN
IMPROVEMENT STD DWG #4-412
- 11 CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD
#219
- 12 CONSTRUCT 7.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
CCAUSD #421, 6 GRATES
- 13 CONSTRUCT 12.5' TYPE "CM2" DROP INLET PER CCAUSD
#412.1, CCAUSD #421, 4 GRATES
- 14 CONSTRUCT 15' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
CCAUSD #421, 3 GRATES
- 15 CONSTRUCT 20' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
CCAUSD #421, 7 GRATES
- 16 CONSTRUCT 17.5' TYPE "CM2" DROP INLET PER CCAUSD
#412.1, CCAUSD #421, 6 GRATES
- 17 CALL BOX
- 18 CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- 19 INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- 20 CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
PER CCAUSD #25.5/1 SHEET D-2 OF 3
- 21 CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- 22 CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- 23 CONSTRUCT DEPRESSION CURB PER DETAIL 41 SHEET D-3
- 24 INSTALL RIPRAP D50=6" THICKNESS=12"
- 25 CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- 26 CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- 27 CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- 28 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

DATE: October 27, 2020		REV		DESCRIPTION		BY APPO DATE	
HORIZ. SCALE:	1"=30'						
VERT. SCALE:	N/A						
DRAWN BY:	DU						
DESIGNED BY:	MJD						
CHECKED BY:	CRZ						
APPROVED BY:	CRZ						
PROJECT #:	4320.0010.						

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BETTER BY DESIGN

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106

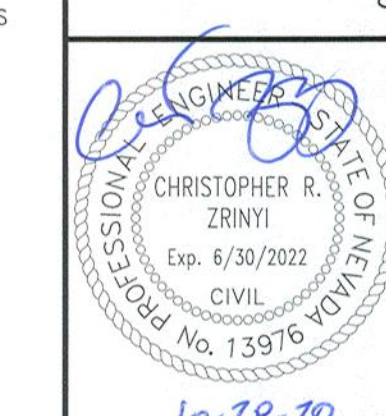
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IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1

GRADING PLAN (SHEET 3 OF 8)

IEVADA

ITY OF THE YEARS



10. 10. 10

G-3

SHT 5 OF 21

14320 Woodside\0010 V22 C0\ CIVIL\ IPS\ INIT 1\ S0003 G=1 SUMMER IN V22 CD dwg 0wille 10/27/20 9:18am	CITY OF LAS VEGAS
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DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

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POWER LINES. IT'S COSTLY.
CALL BEFORE
YOU DO
OVERHEAD
1-702-227-2929

BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS

ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE
SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH,
RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN
VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF
IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL
RECORDS, CLARK COUNTY, NEVADA.

BUILDING PERMIT NOTE

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL. THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN A PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

FLOOD ZONE NOTE

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

SURVEY MONUMENT NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR OBSOBERED DURING CONSTRUCTION.

SIGHT VISIBILITY ZONE

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

ENGINEERS NOTES

- CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
- SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
- SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
- ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
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- ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
- DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO SLOPE SLOPES.
- SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE WITH SOILS REPORT PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
- CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119,663 CY
NET FILL: 47,402 CY
- SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
- FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

NOTE

ALL ON-SITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

SEWER EASEMENT NOTE

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DISCLAIMER NOTE:

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CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID SLV0926W6, RIVET AND PLATE IN TOP OF CURB AT THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

BUILDING PERMIT NOTE

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FLOOD ZONE NOTE

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS DESIGNATED BY FEMA FIRM MAP# 32003C2150E DATED 09/27/2002

SURVEY MONUMENT NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

SIGHT VISIBILITY ZONE

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ENGINEERS NOTES

- CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
- SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
- SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
- ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
- THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
- ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
- DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
- SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE WITH SOILS REPORT PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
- CUT/FILL ESTIMATES:
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119,863 CY
NET FILL: 47,402 CY
- SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
- FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

NOTE

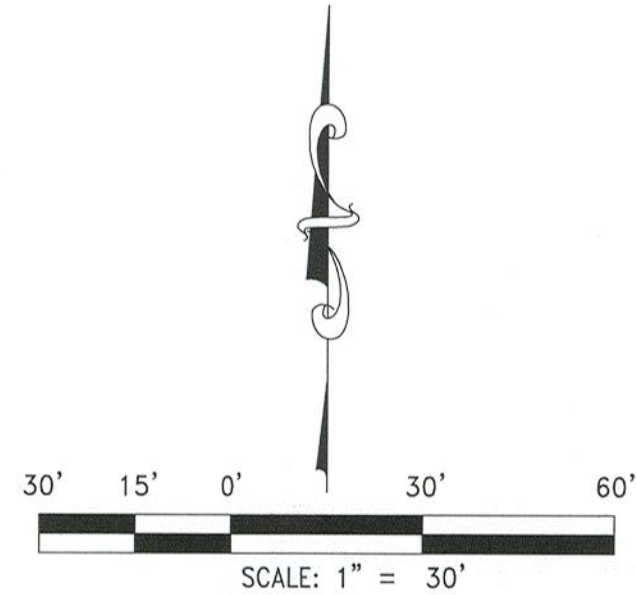
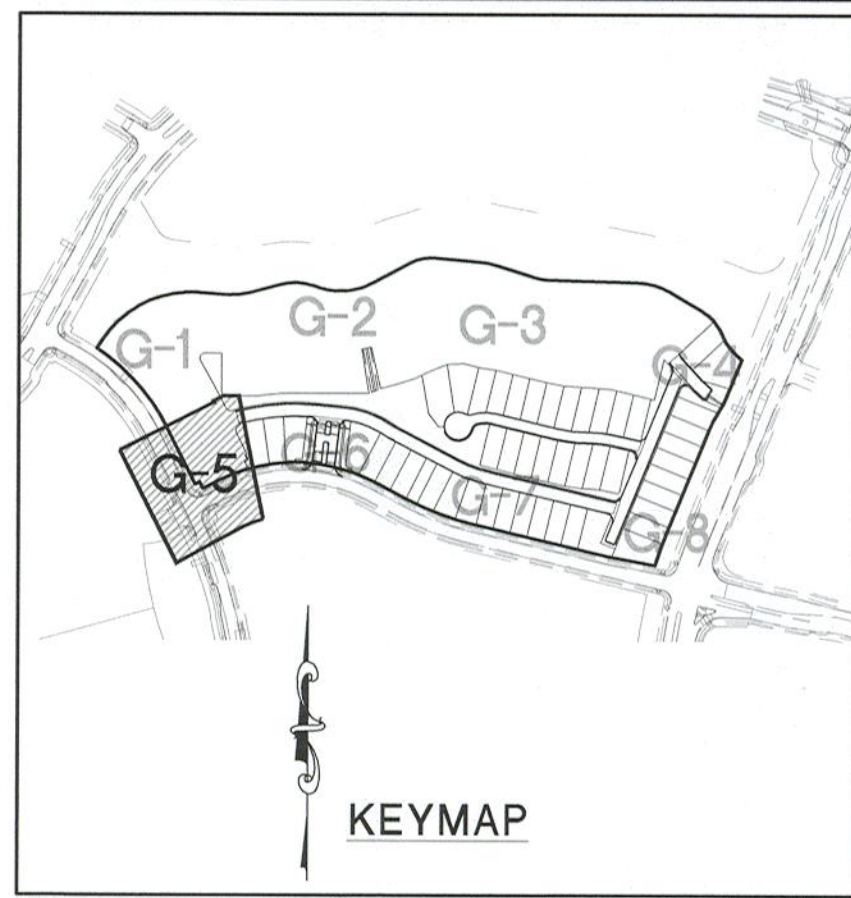
ALL ON-SITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA

SEWER EASEMENT NOTE

NO STRUCTURES AND NO TREES OR VEGETATION TALLER THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



CONSTRUCTION NOTES

- CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4 ON SHEET D-1
- CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S1
- CONSTRUCT 4" SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT 5" SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- CONSTRUCT 5" TRANSITION FROM "L" TYPE CURB AND GUTTER TO "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-64
- CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD #219
- CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 2 GRATES
- CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 4 GRATES
- CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- CALL BOX
- CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- INSTALL 3" WIDE RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.S1 SHEET 3 OF 3
- CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- CONSTRUCT DEPRESSIONED CURB PER DETAIL 41 SHEET D-3
- INSTALL RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG #5-75

FOR REVIEW ONLY	DATE	
REV	BY	APPD
DESCRIPTION		
DATE	October 27, 2020	
HORIZ. SCALE	1"=30'	
VERT. SCALE	N/A	
DRAWN BY	DU	
CHECKED BY	MJD	
DESIGNED BY	CHZ	
APPROVED BY	CHZ	
PROJECT #	4320.0010	

Woodside Homes® BETTER BY DESIGN	RCI ENGINEERING 500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106 PH: 702.722.43.0001 www.rcieng.com
IMPROVEMENT PLANS FALCON CREST SUMMERLIN V22 PARCELS C AND D UNIT 1	NEVADA GRADING PLAN (SHEET 5 OF 8)
CITY OF LAS VEGAS	
PROFESSIONAL ENGINEER CHRISTOPHER R. ZRINYI Exp. 6/30/2022 CIVIL No. 13976	
10-19-20	
DRAWING G-5 SHT 7 OF 21	

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE

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CONSTRUCTION



AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

**CALL BEFORE
YOU DO
OVERHEAD**

1-702-227-2929

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.



ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL. THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY WORK DONE ON THE "RIGHT OF WAY" OR "RIGHT OF WAY." THIS DOES NOT INCLUDE PRIVATE STREETS, THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION
AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY
UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION
DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TRANSITIONS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT, PREPARED BY:
ENGINEER, GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119,665 CY
NET FILL: 47,402 CY
10. SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES, REFER TO SHEET N-1

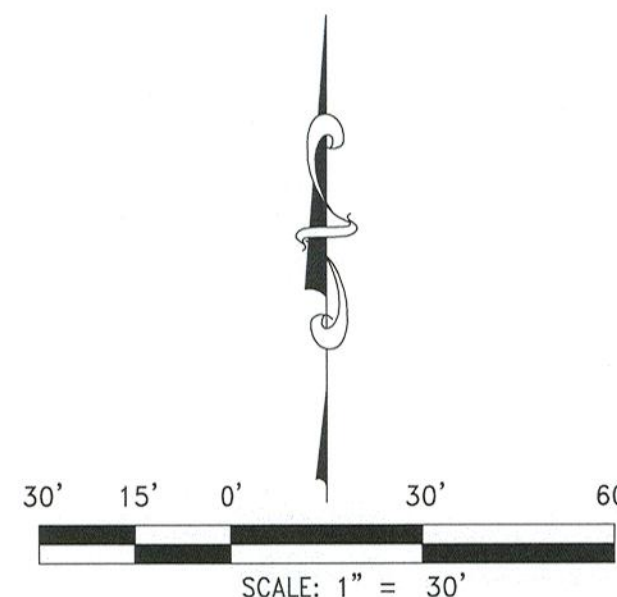
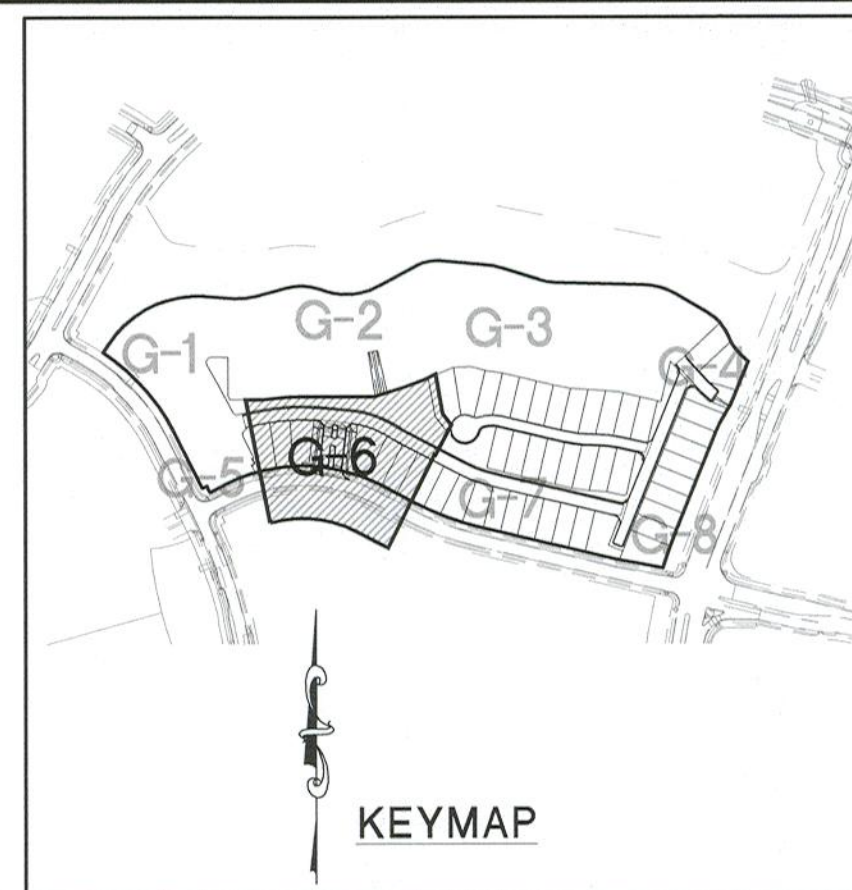
ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY HOA.

SEWER EASEMENT NOTE

NO STRUCTURES AND NO TREES OR VEGETATION TALLER THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- (1) CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4 ON SHEET D-1
- (2) CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-4
- (3) CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- (4) CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- (5) CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- (6) CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- (7) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- (8) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- (9) CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- (10) CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-8
- (11) CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD #219
- (12) CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- (13) CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 4 GRATES
- (14) CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- (15) CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- (16) CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- (17) CALL BOX
- (18) CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- (19) INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- (20) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.51 SHEET 3 OF 3
- (21) CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- (22) CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- (23) CONSTRUCT DEPRESSION CURB PER DETAIL 41 SHEET D-3
- (24) INSTALL RIPRAP D50=6" THICKNESS=12"
- (25) CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- (26) CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- (27) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- (28) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)

DATE:	October 27, 2020	REV	DESCRIPTION	BY	APPD	DATE
HORIZ. SCALE:	1" = 50'					
VERT. SCALE:	N/A					
DRAWN BY:	DJ					
DESIGNED BY:	MJD					
CHECKED BY:	CRZ					
APPROVED BY:	CRZ					
PROJECT #:	4320.0010.					

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BETTER BY DESIGN

DCI ENGINEERING

KCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

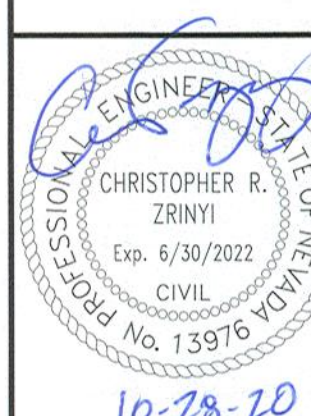
IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1

GRADING PLAN (SHEET 6 OF 8)

NEVADA

19nm

CITY OF LAS VEGAS



10-28-78

G-6

SHT 8 OF 21

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call
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 **Call**
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UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

**CALL BEFORE
YOU DO
OVERHEAD**



1-702-227-2929

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPES, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH OVERVERTS, LEADING ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN THE PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

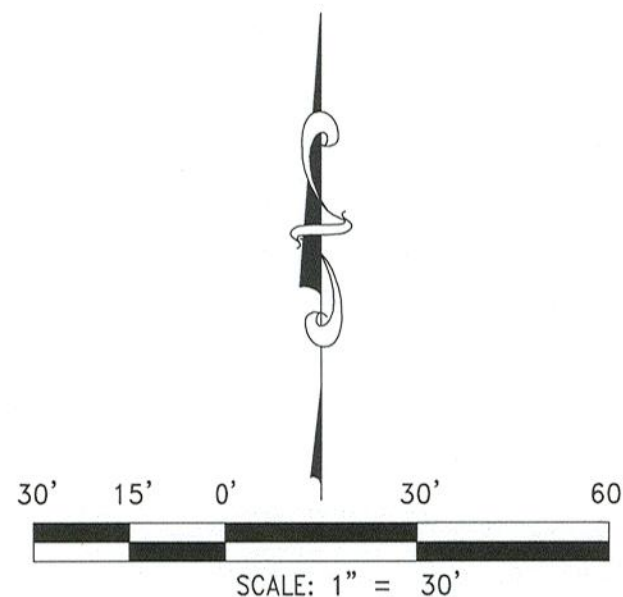
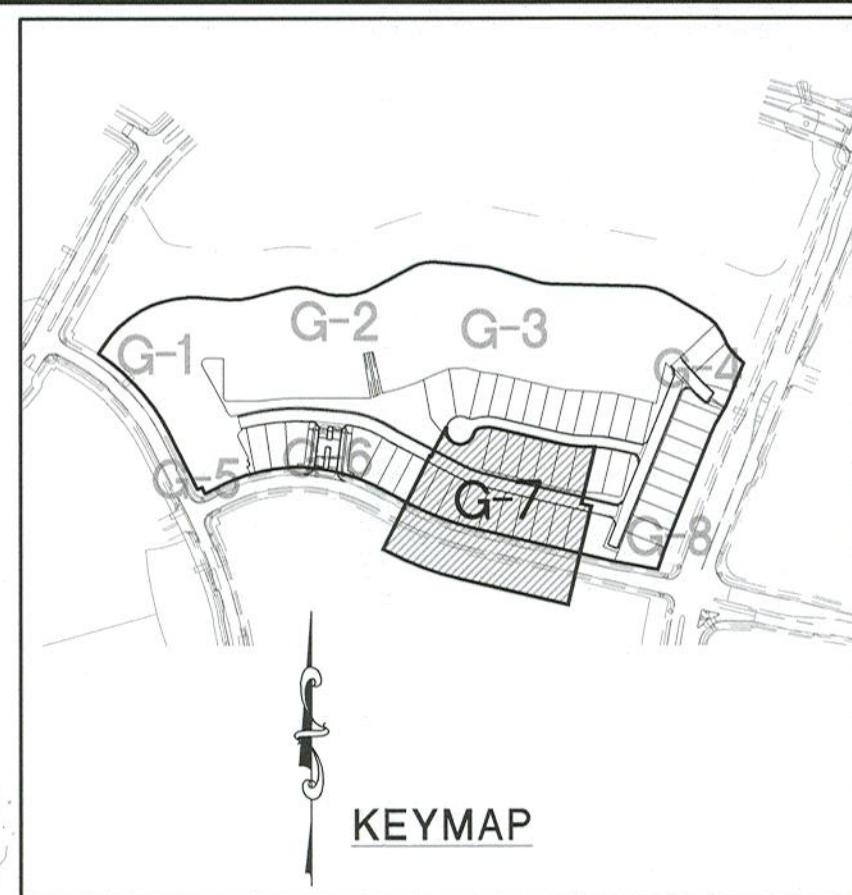
OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION
AS REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY
UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
RESPONSIBLE TO REPLACE ALL SURVEY MONUMENTATION
DAMAGED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119.663 CY
NET FILL: 47.402 CY
10. SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE

NOTE
ALL PRIVATE STREETS ARE P.U.E., PUBLIC
SEWER EASEMENTS AND PUBLIC DRAINAGE
EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA.

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
- 2 ON SHEET D
- 3 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
- 4 IMPROVEMENT STD DWG #5-48
- 5 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 6 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- 7 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
- 8 THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 9 CONSTRUCT 6' SIDEWALK PER CCAUSD #234 (5-INCH
- 10 THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 11 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
- 12 DOMES OR EQUIVALENT PER CCAUSD #235 (CASE I)
- 13 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
- 14 DOMES OR EQUIVALENT PER CCAUSD #235 (CASE II)
- 15 CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO
- 16 "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- 17 CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
- 18 IMPROVEMENT STD DWG #5-49
- 19 CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD
- 20 #219
- 21 CONSTRUCT 7.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 22 CCAUSD #421, 2 GRATES
- 23 CONSTRUCT 12.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 24 CCAUSD #421, 4 GRATES
- 25 CONSTRUCT 15' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 26 CCAUSD #421, 6 GRATES
- 27 CONSTRUCT 20' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 28 CCAUSD #421, 7 GRATES
- 29 CONSTRUCT 17.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 30 CCAUSD #421, 6 GRATES
- 31 CALL BOX
- 32 CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- 33 INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- 34 CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- 35 PER CCAUSD 425.51 SEDIMENTATION IMPROVEMENT STD DWG #5-49
- 36 CONSTRUCT PEDIESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- 37 CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- 38 CONSTRUCT DEPRESSION CURB PER DETAIL 41 SHEET D-3
- 39 INSTALL RIPRAP D50=6" THICKNESS=12"
- 40 CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- 41 CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- 42 CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- 43 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES
- 44 OR EQUIVALENT PER CCAUSD #235 (CASE I)

DATE	REV	DESCRIPTION	BY	APPD	DATE
October 27, 2020					
HORIZ. SCALE: 1"=30'					
VERT. SCALE: N/A					
UP					
DOWN BY:					
MUD					
DESIGNED BY:					
CR2					
CHECKED BY:					
CR2					
APPROVED BY:					
DRAWN BY:					
4326.0010					



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RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0800 FAX#702.453.0801

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1

GRADING PLAN (SHEET 7 OF 8)

NEVADA

G-7

SHT 9 OF 21

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

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1-702-227-2929

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
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ELEVATION = 984.288 METERS
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THIS DEVELOPMENT LIES WITHIN A ZONE "X" AS
DESIGNATED BY FEMA FIRM MAP# 32003C2150E
DATED 09/27/2002

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION
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UNIFORM STANDARD DRAWING NUMBER 243. OWNER IS ALSO
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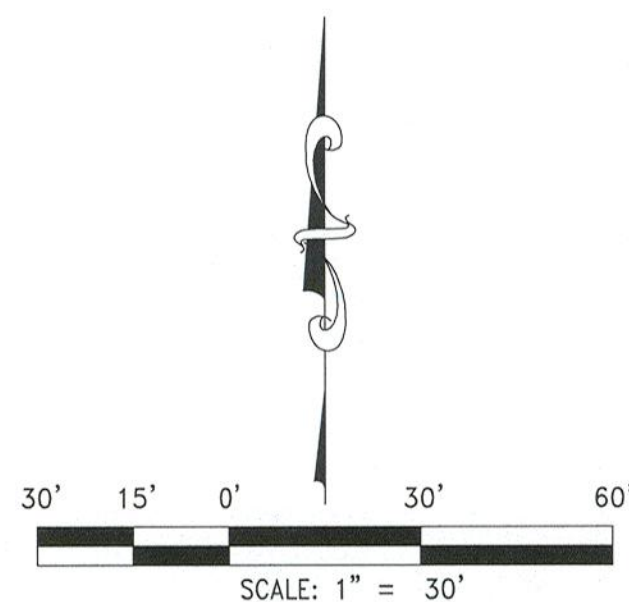
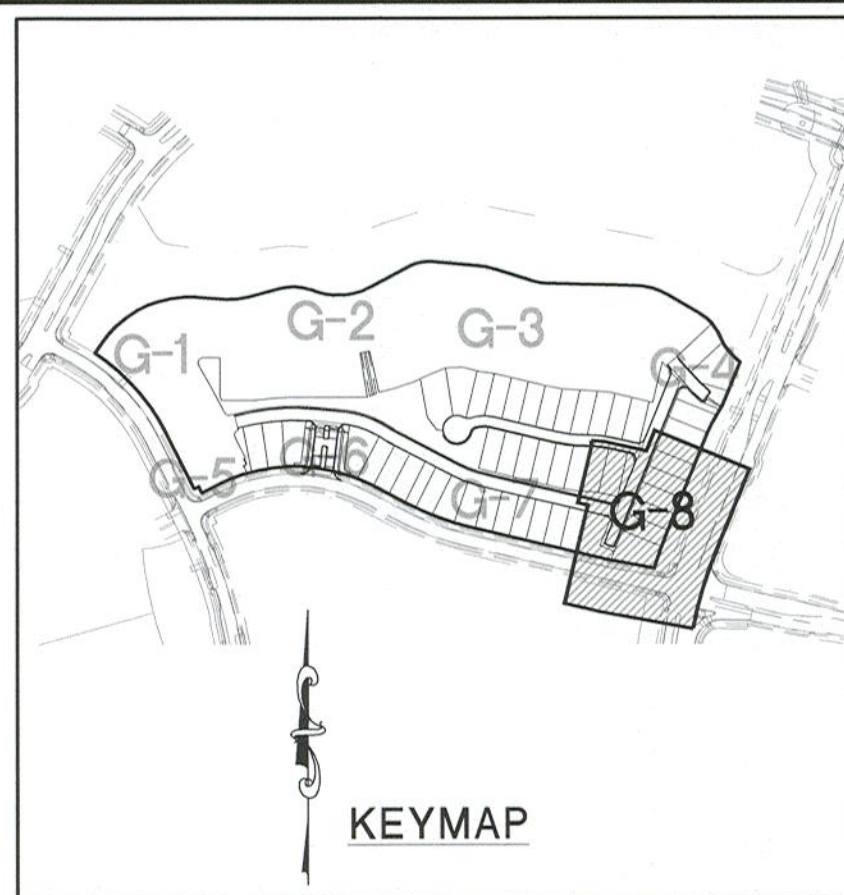
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1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE 4% TO 12% SLOPES ON VERTICAL TANGENTS TO VERIFY SLOPE.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT, PREPARED BY:
ENGINEER: GEO-TEK
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 119,883 CY
NET FILL: 47,402 CY
10. SEE DETAIL 36/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

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EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA

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THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
ON SHEET D-1
- 2 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #31
- 3 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- 5 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6 CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 7 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- 8 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 9 CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO
"R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- 10 CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #21
- 11 CONSTRUCT "AT" TYPE ISLAND CURB AND GUTTER PER CCAUSD
#219
- 12 CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1,
CCAUSD #421, 2 GRATES
- 13 CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD
#412.1, CCAUSD #421, 4 GRATES
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- 17 CALL BOX
- 18 CONSTRUCT ELECTRICALLY CONTROLLED ACCESS GATES
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PER CCAUSD 425.51 SHEET 3 OF 3
- 21 CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- 22 CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- 23 CONSTRUCT DEPRESSIONED CURB PER DETAIL 41 SHEET D-3
- 24 INSTALL RIPRAP D50=6" THICKNESS=12"
- 25 CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
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- 28 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES
OR EQUIVALENT PER CCAUSD #235 (CASE 1)

REV	DESCRIPTION	BY	APPD	DATE
	DATE: October 27, 2020			
	HORIZ. SCALE: 1" = 50'			
	VERT. SCALE: N/A			
	DRAWN BY: DU			
	DESIGNED BY: WJD			
	CHECKED BY: CRZ			
	APPROVED BY: CRZ			
	PROJECT #: 4590.0010			

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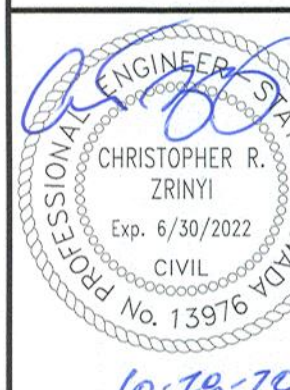
RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106

NEVADA

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1

GRADING PLAN (SHEET 8 OF 8)

CITY OF LAS VEGAS



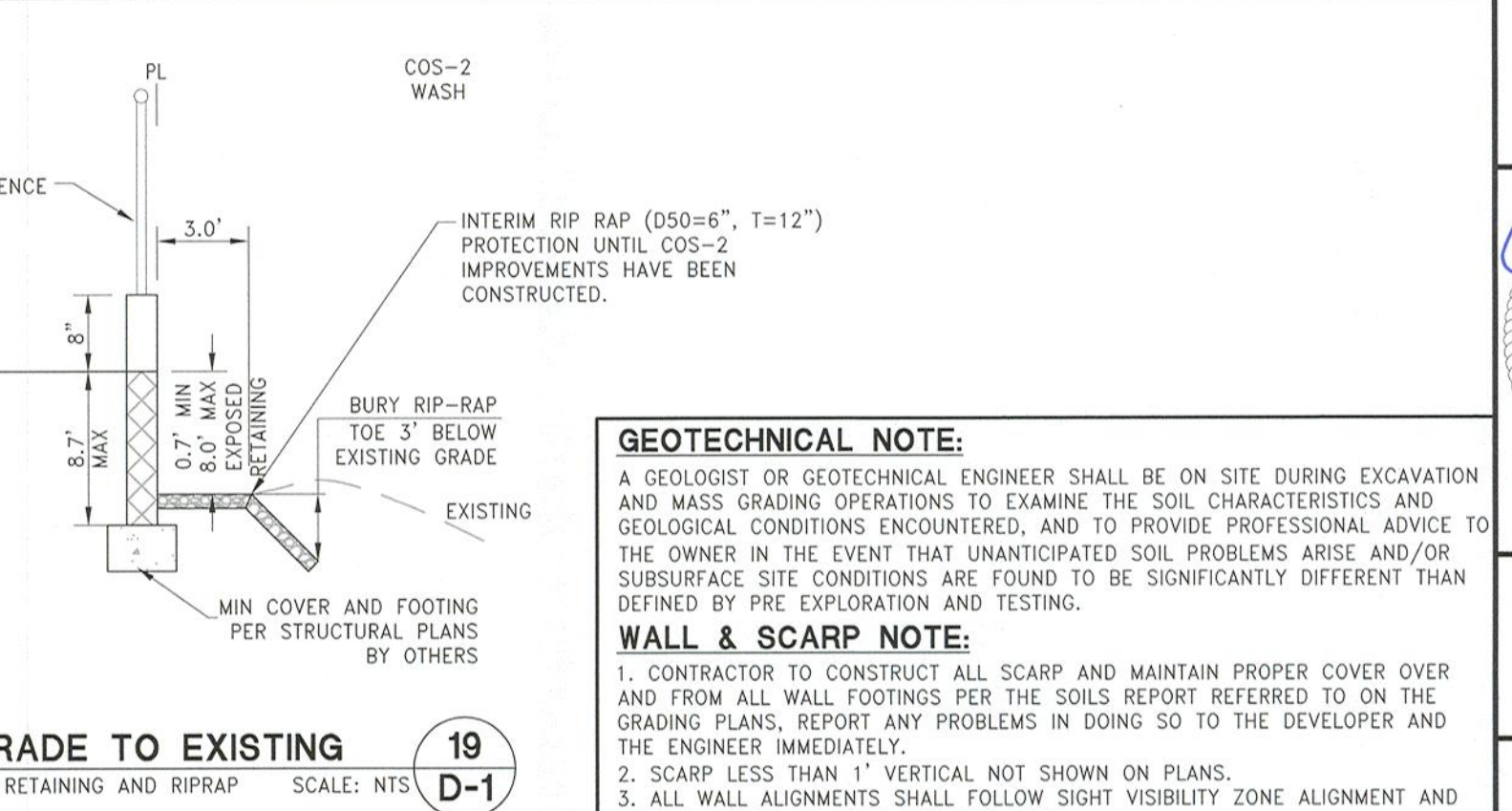
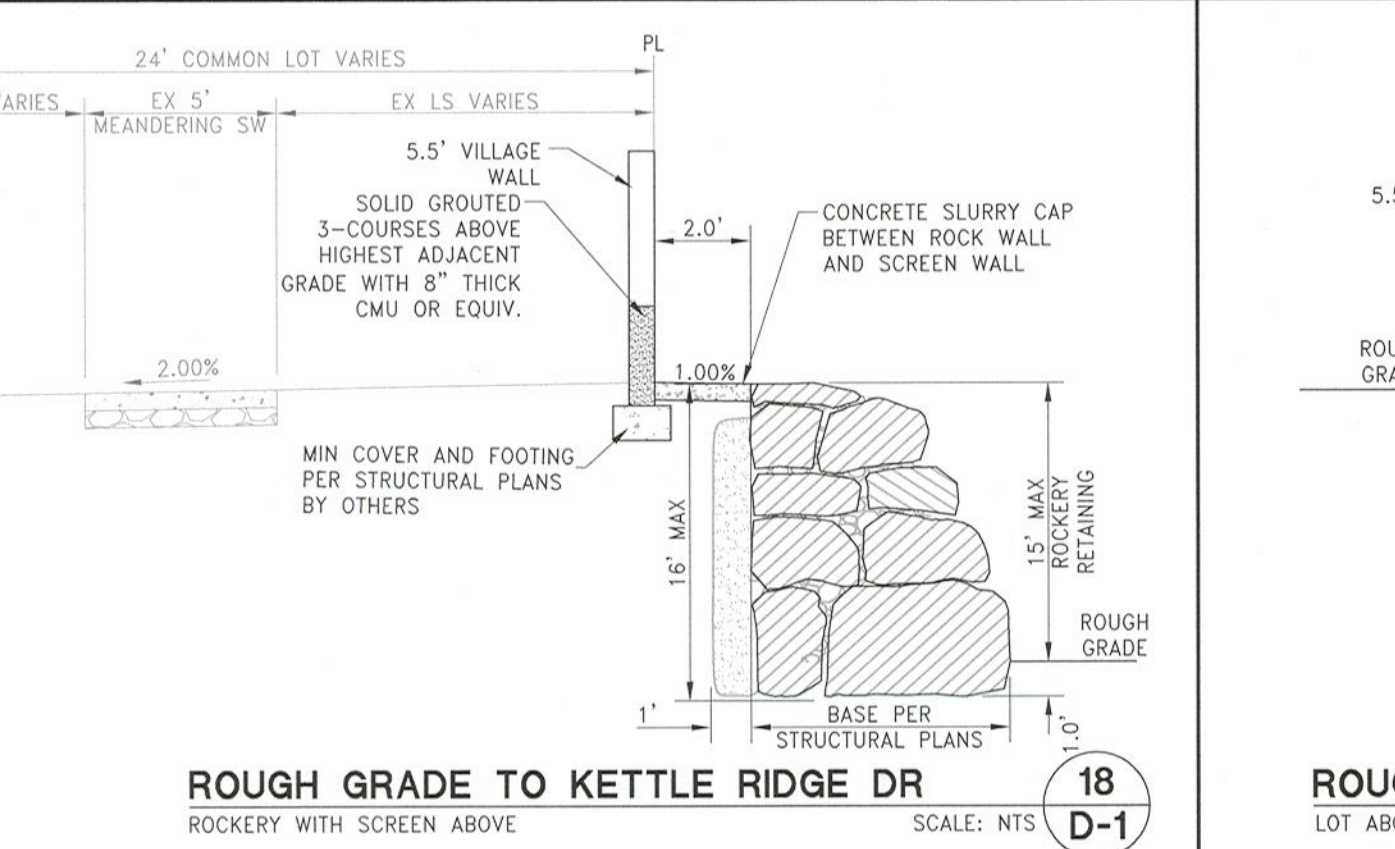
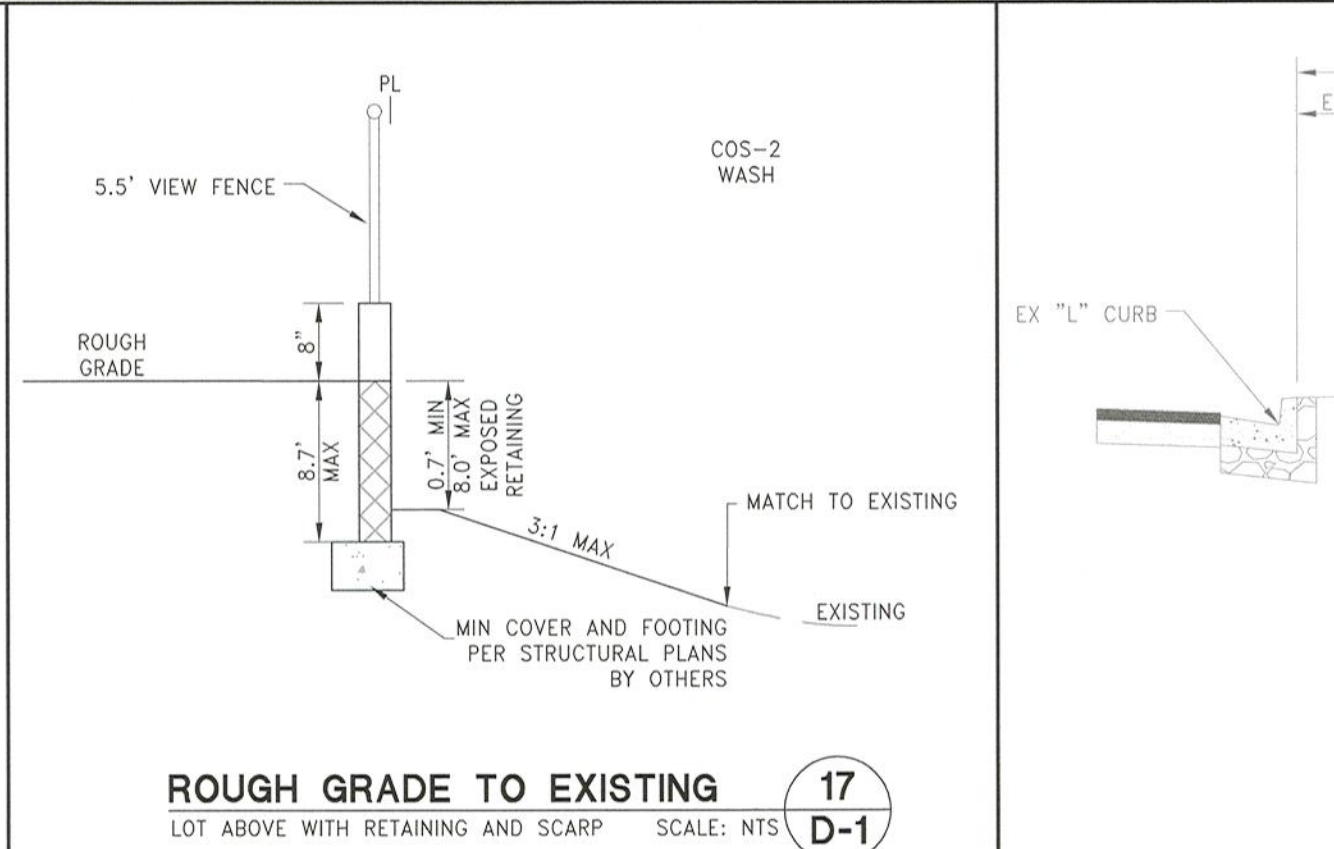
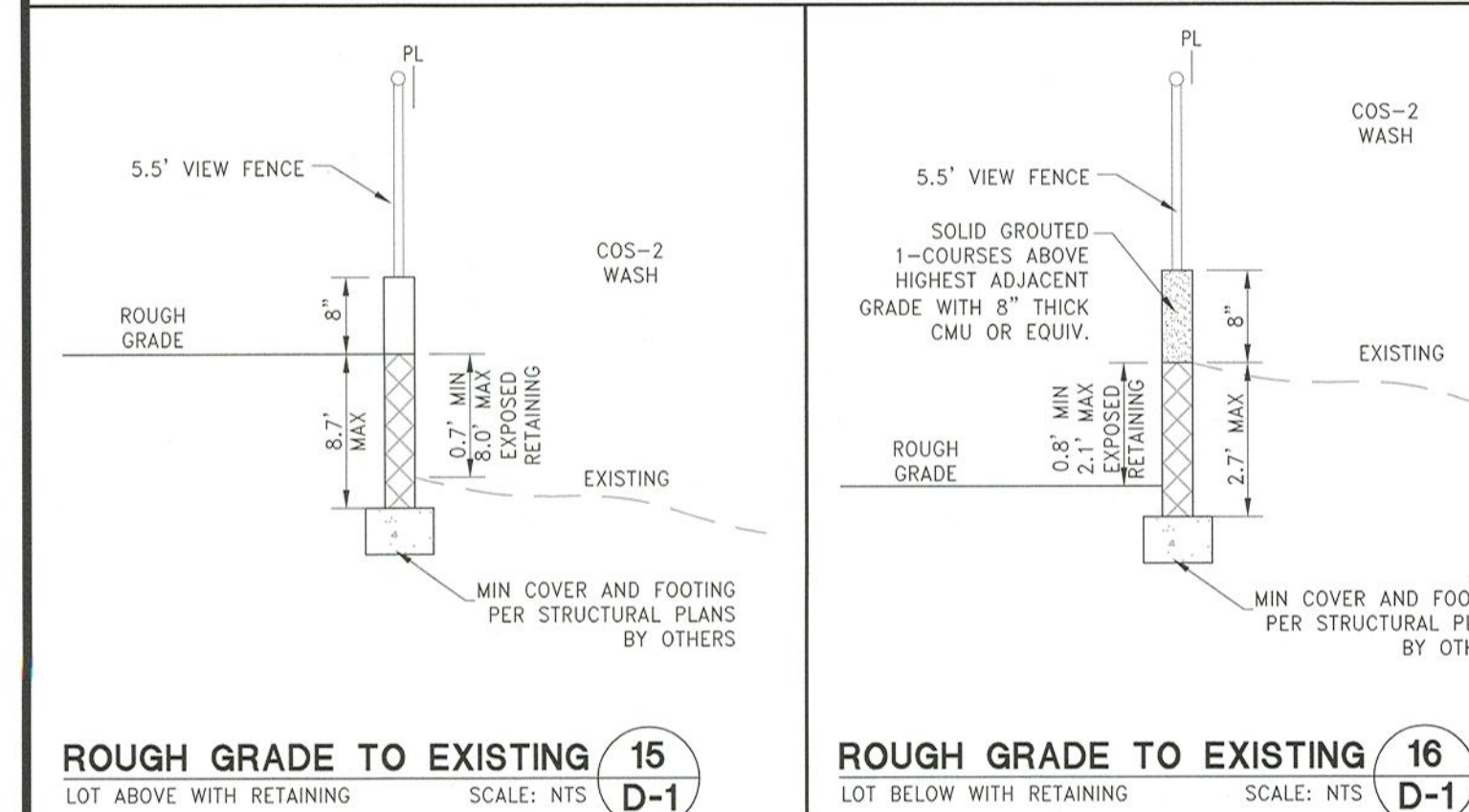
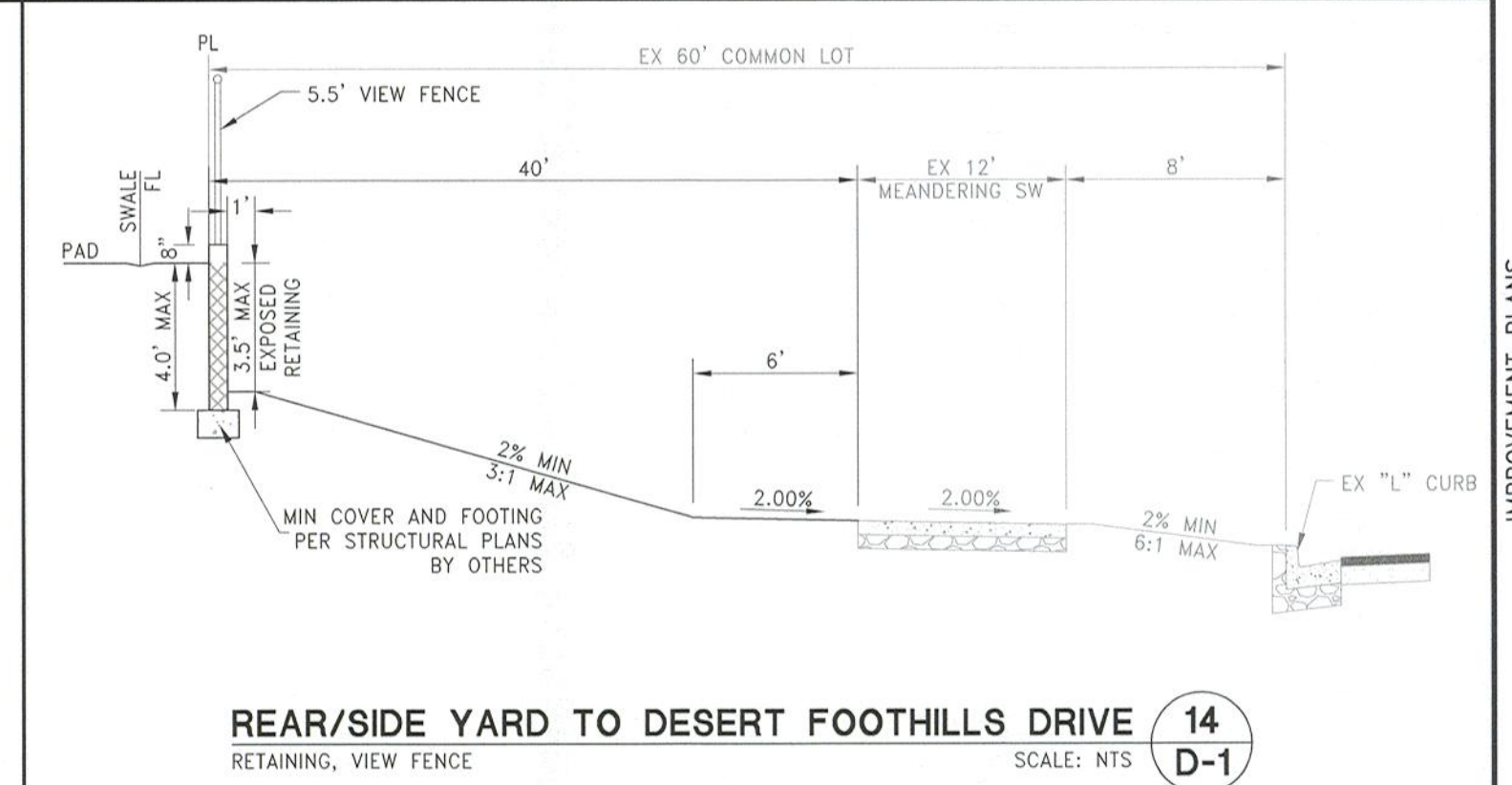
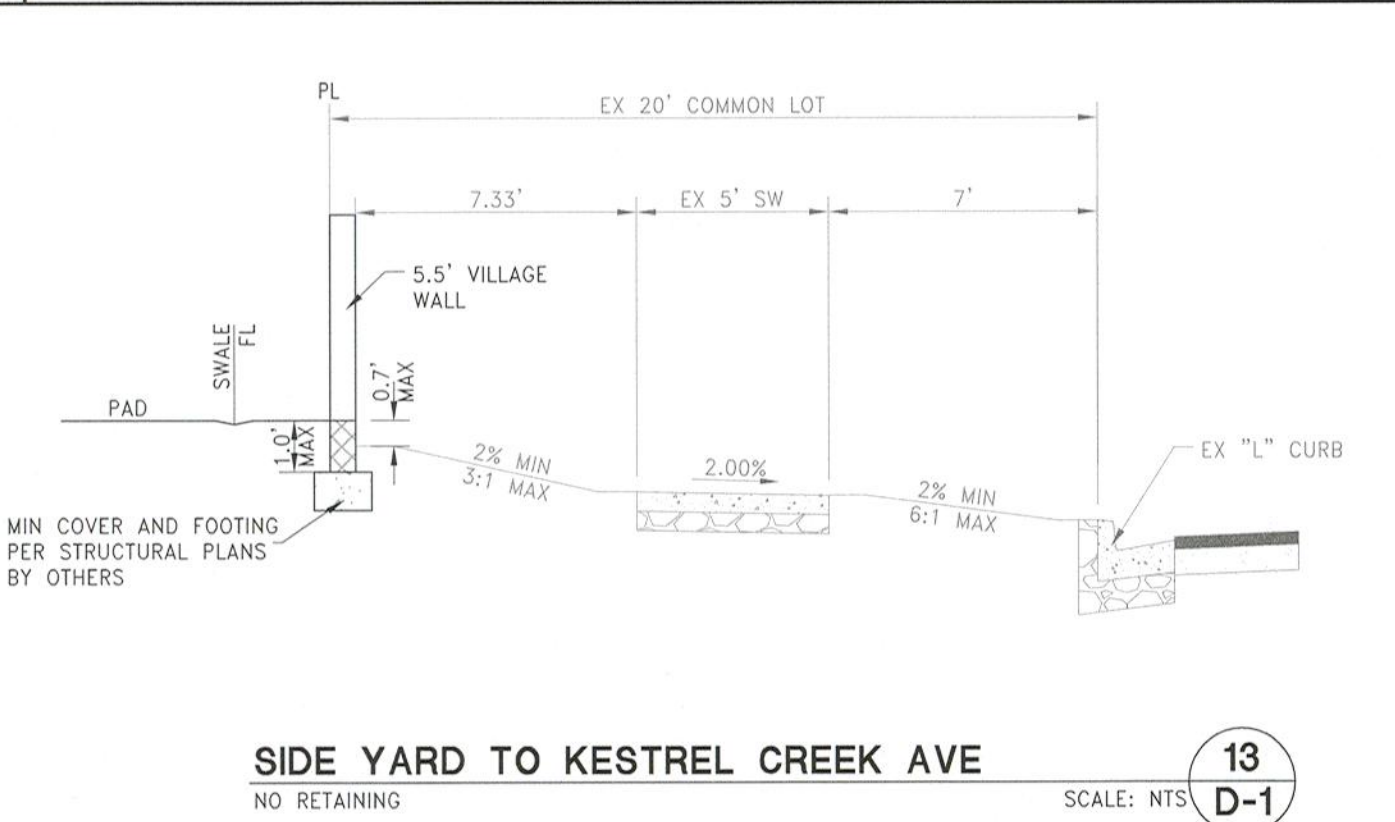
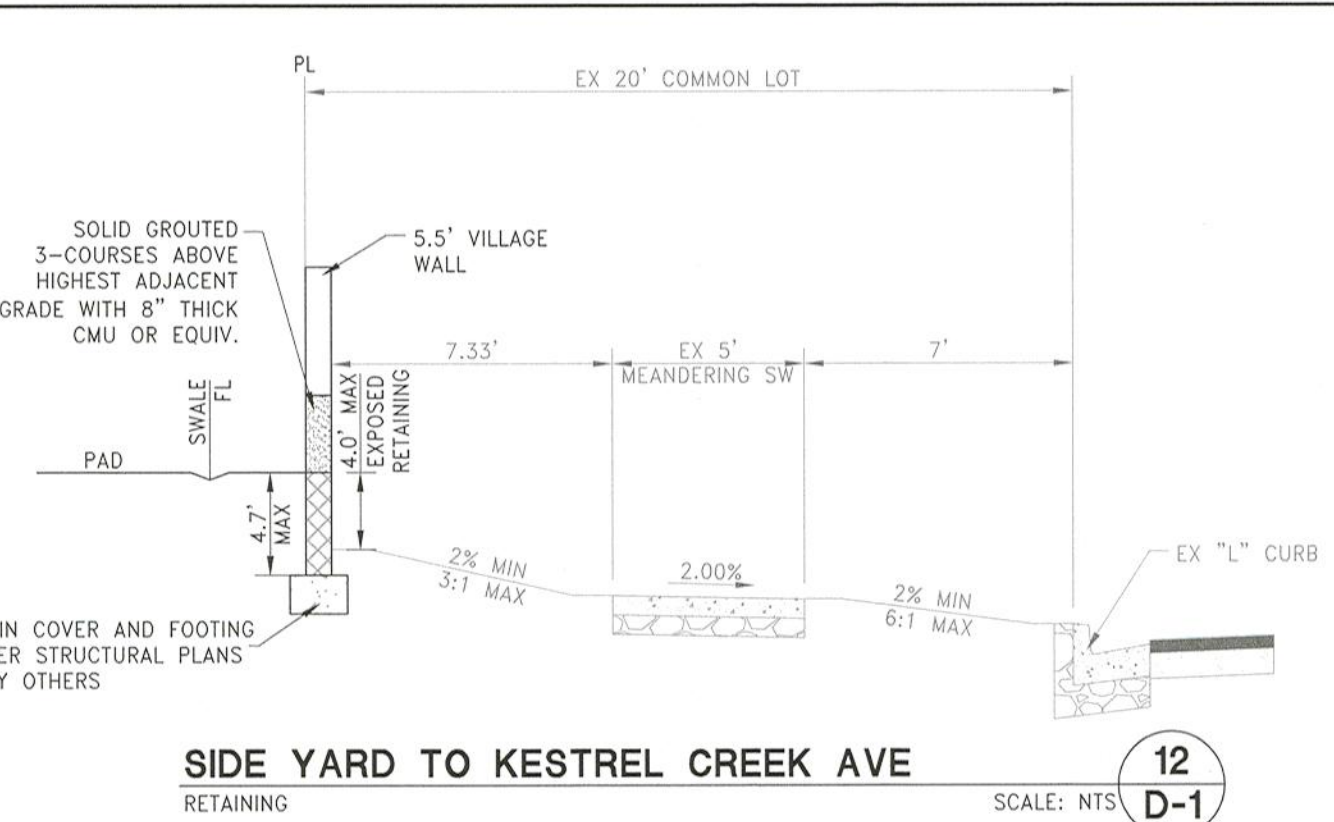
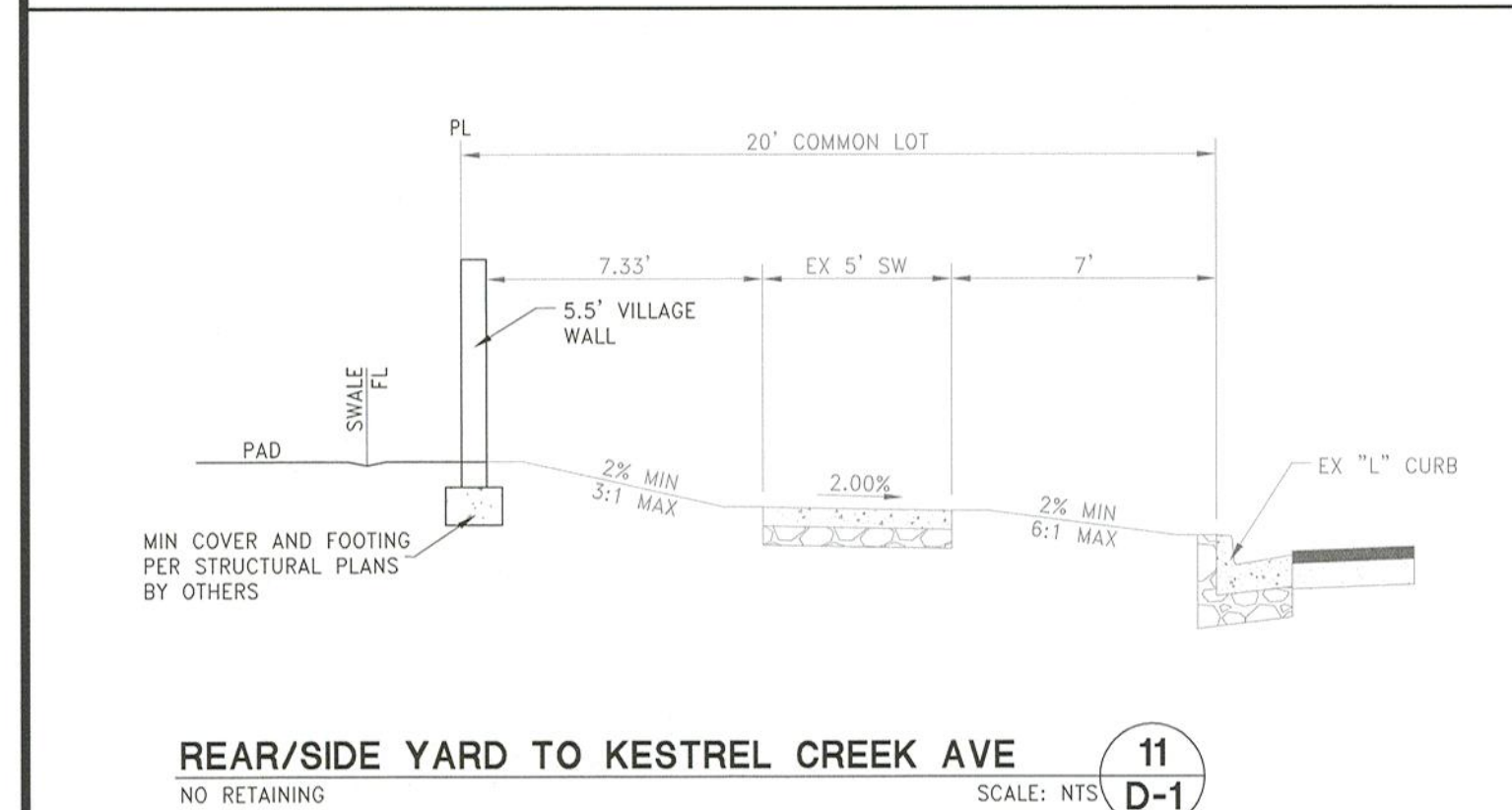
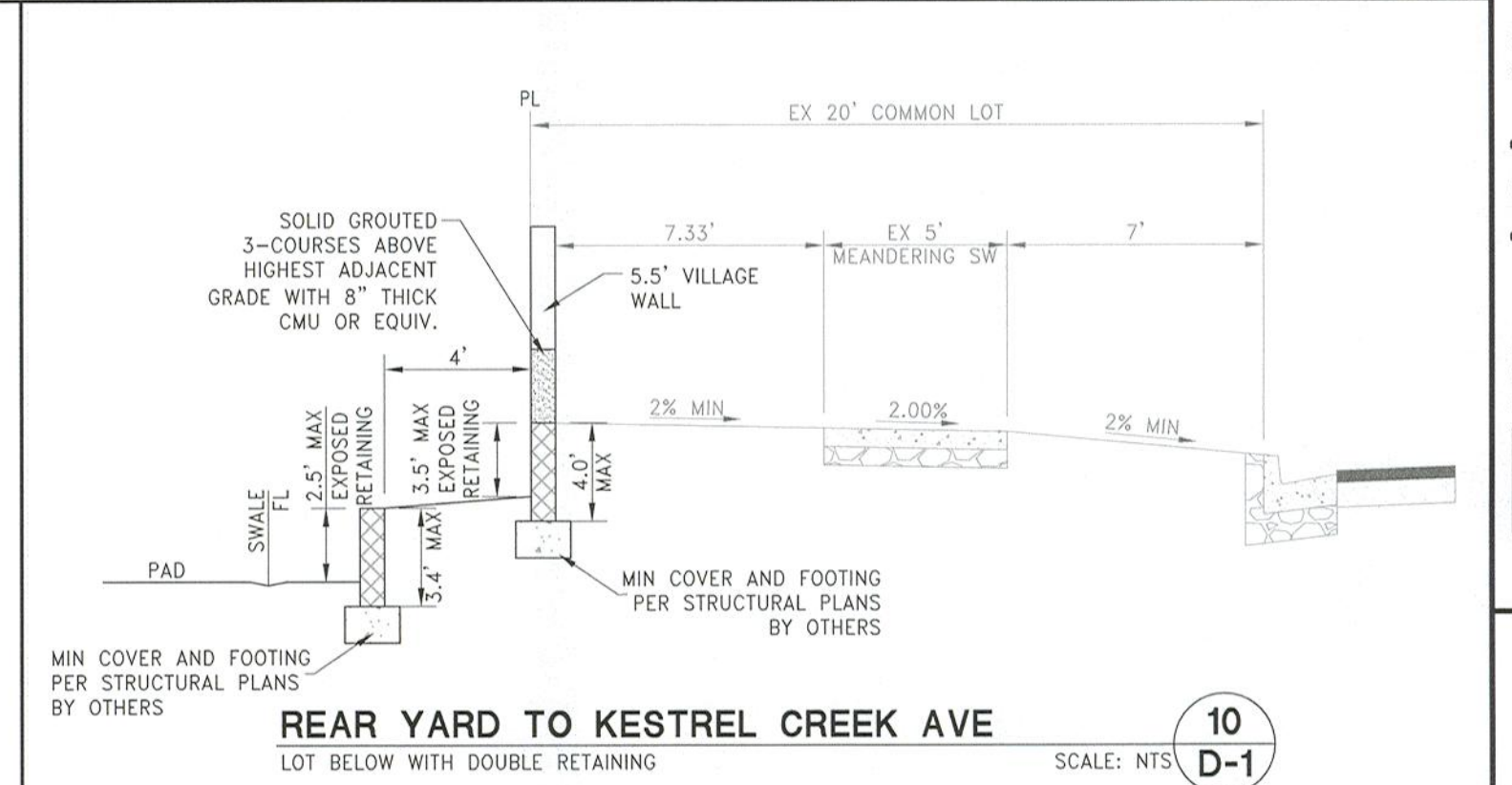
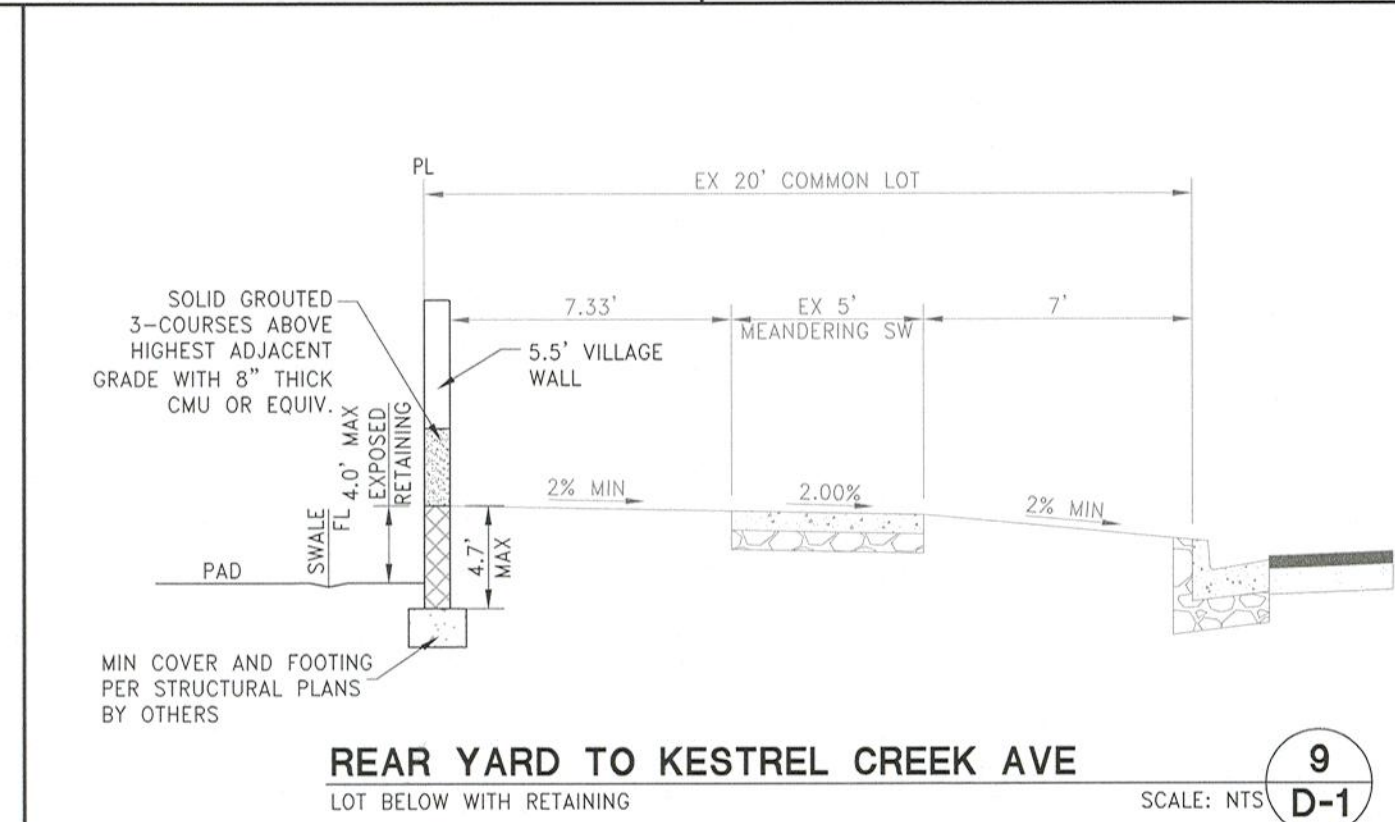
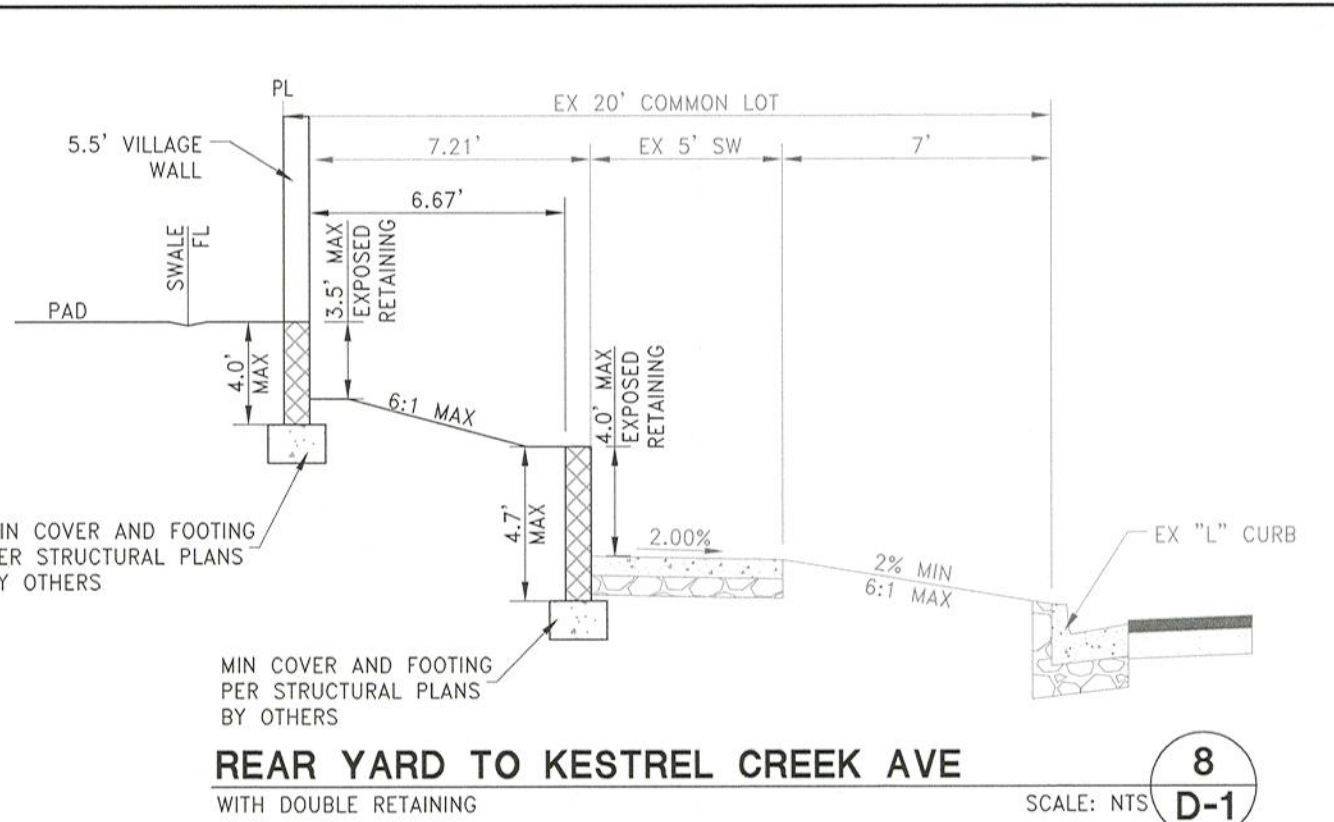
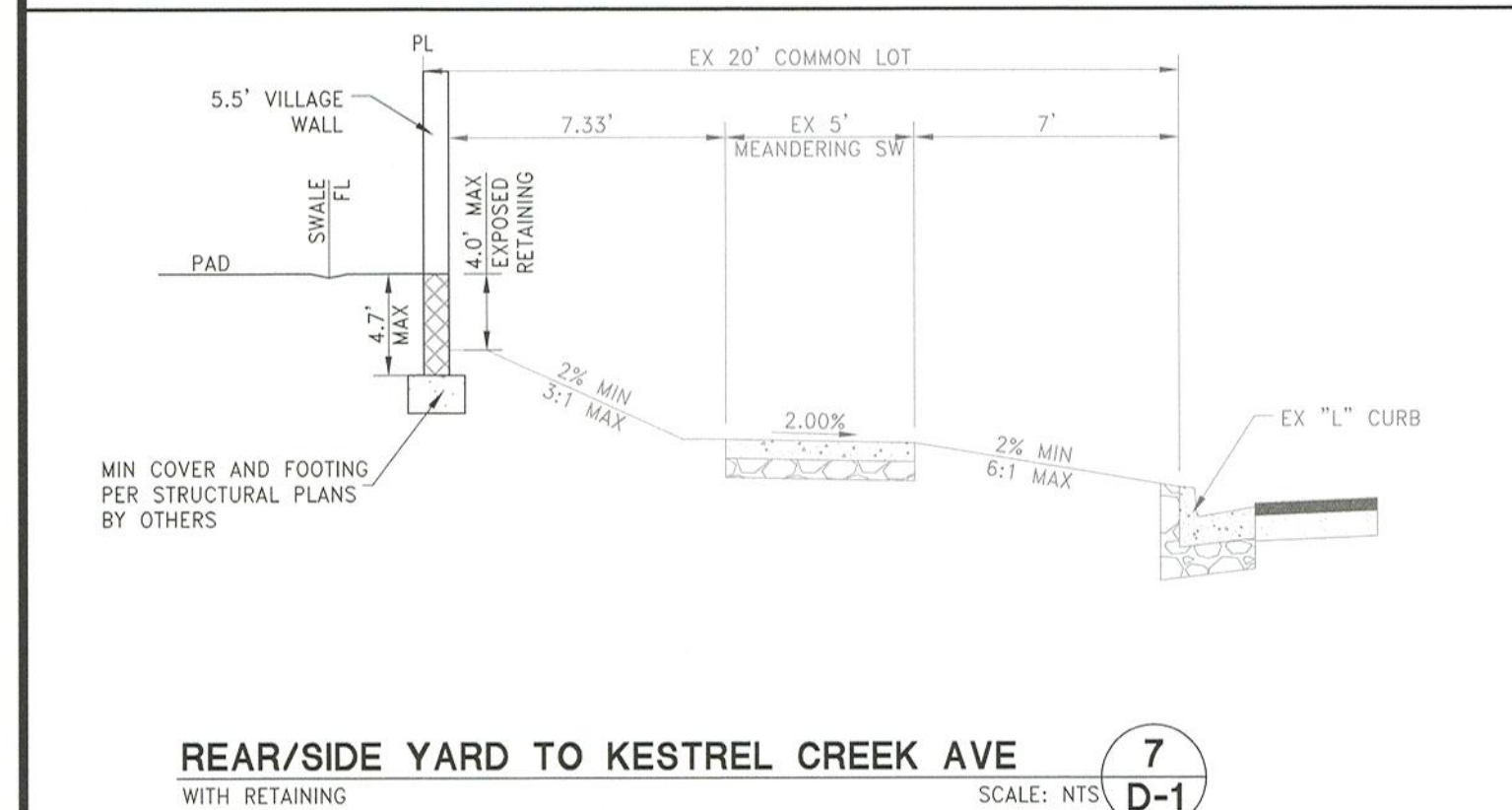
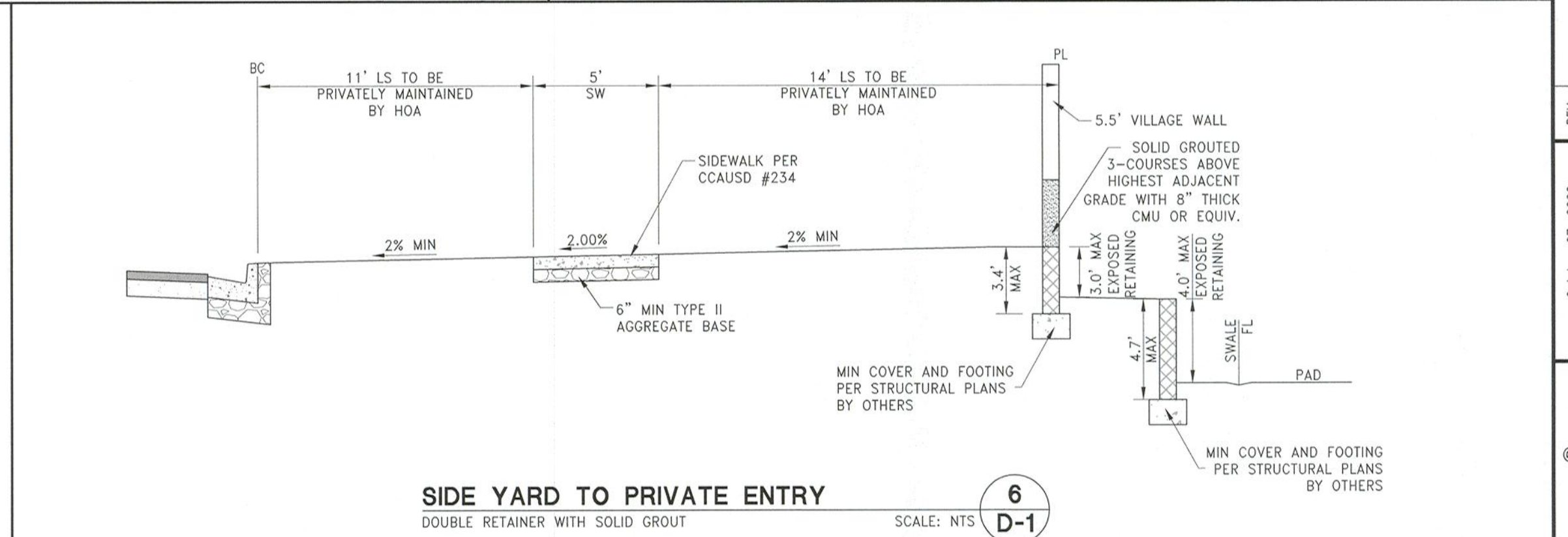
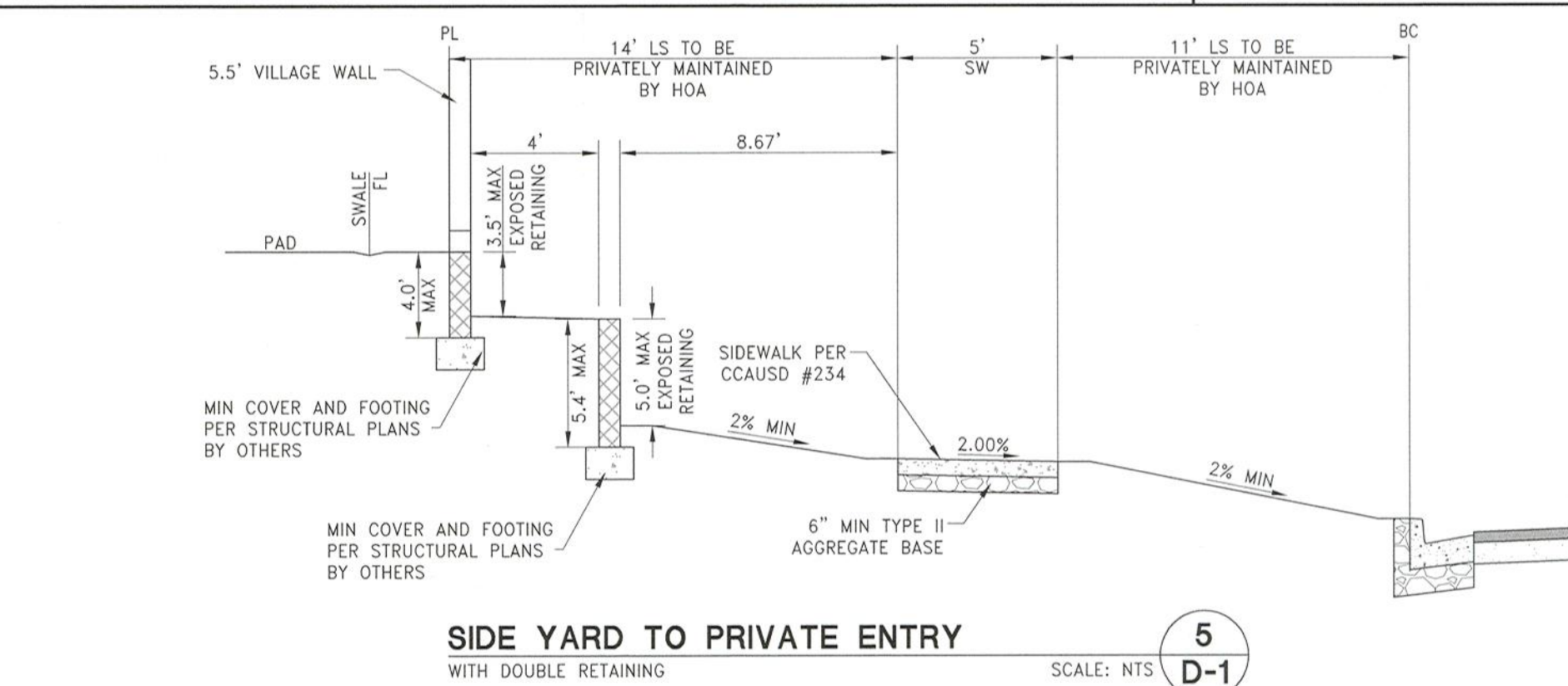
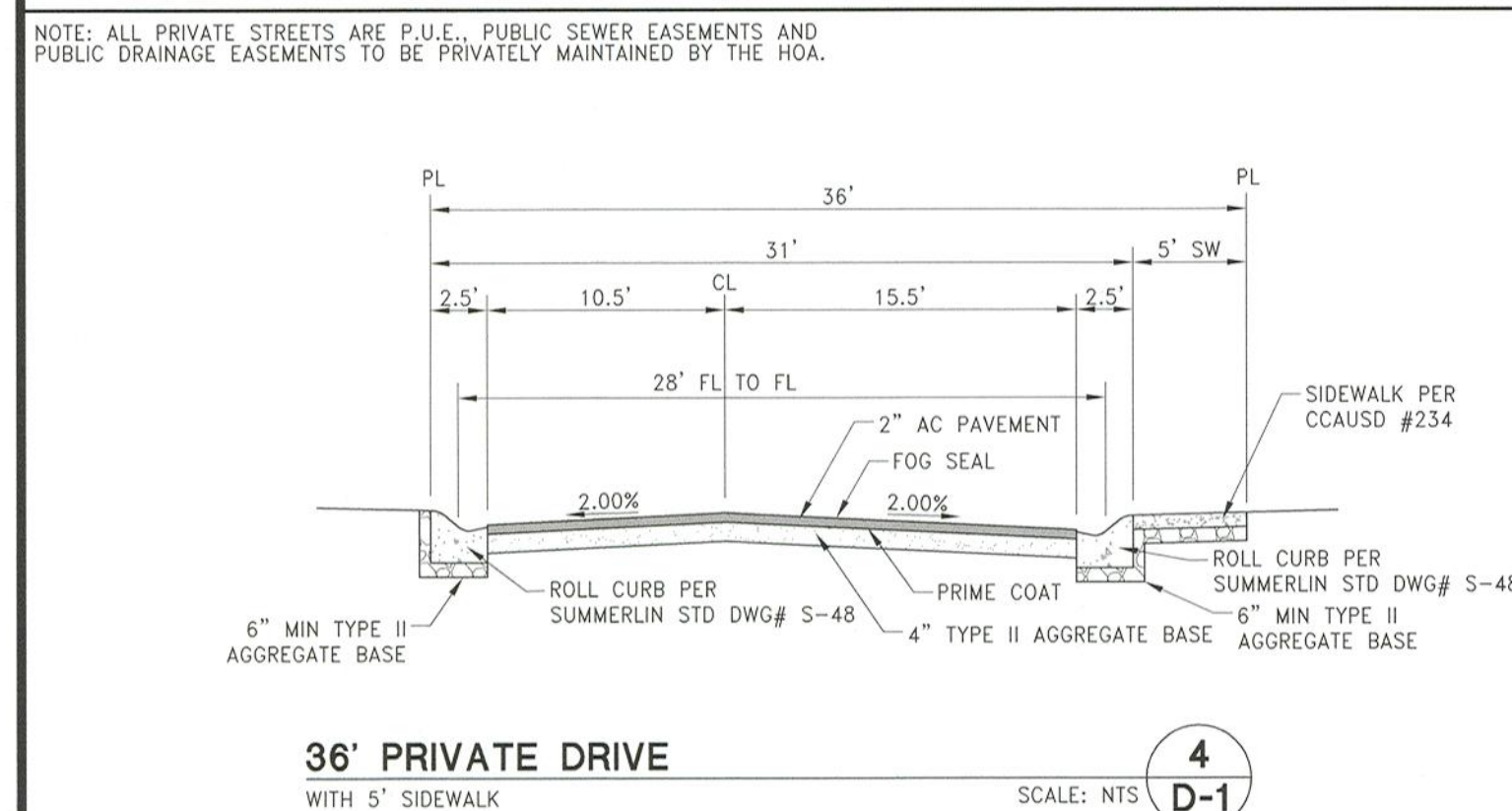
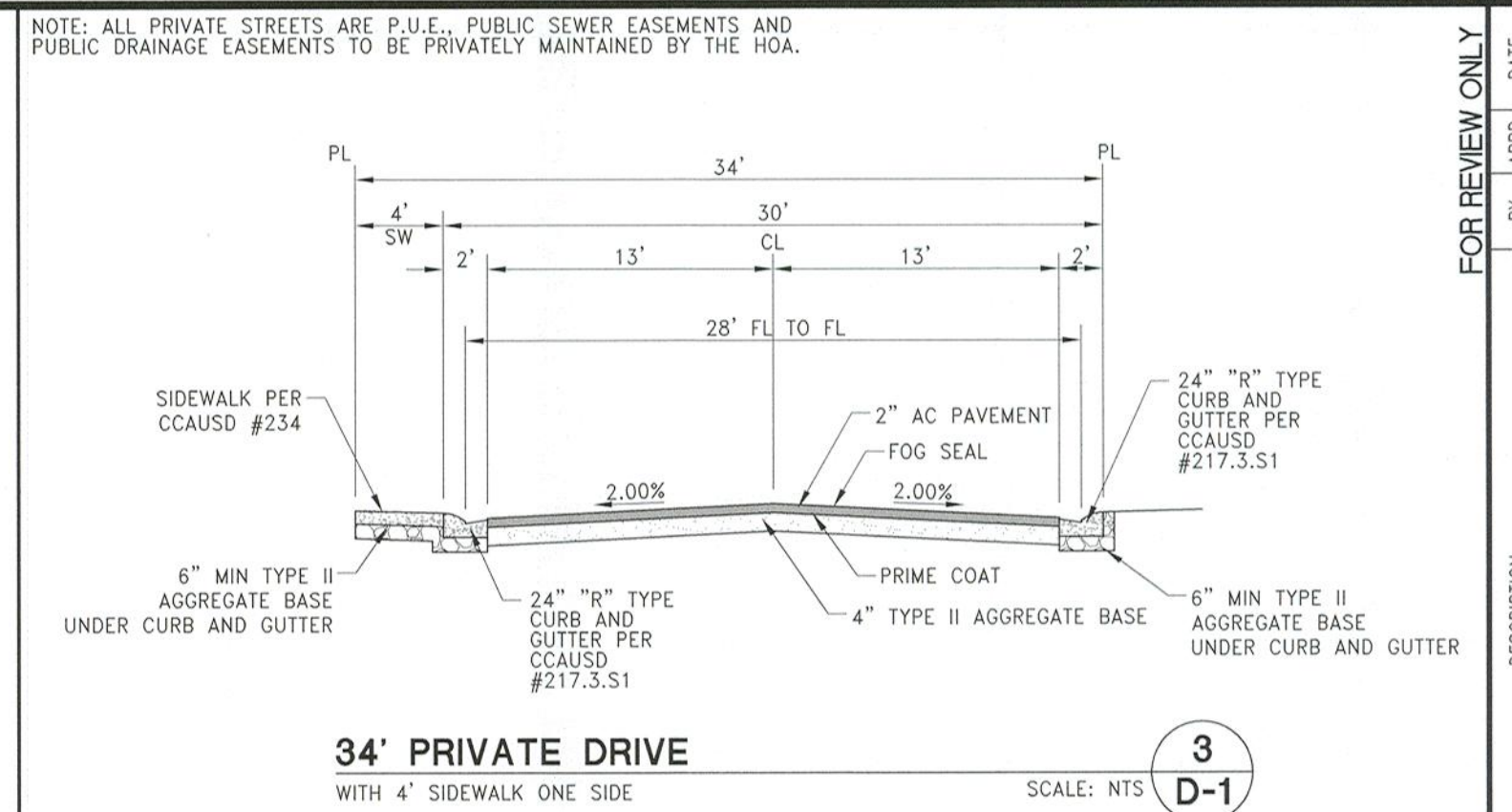
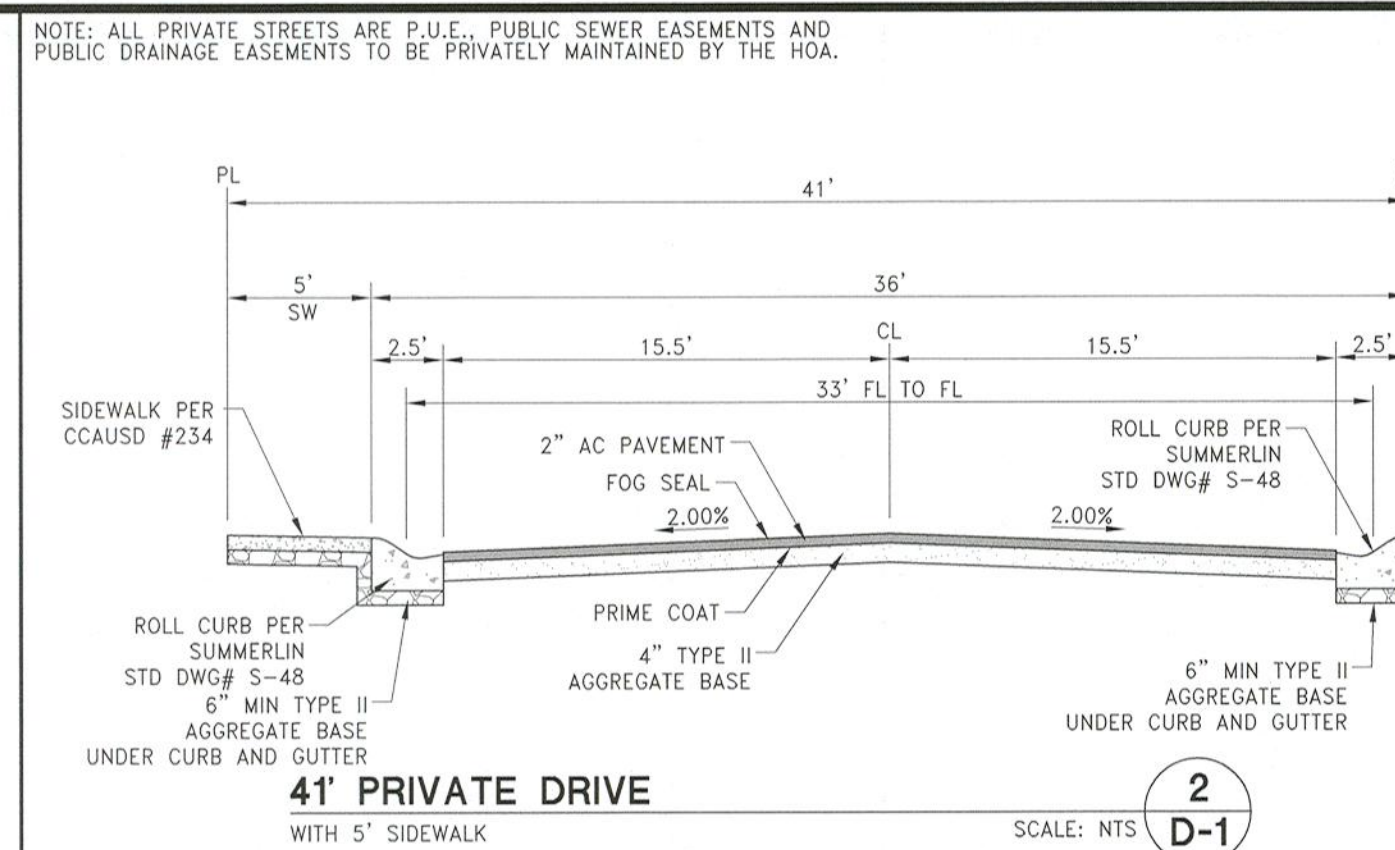
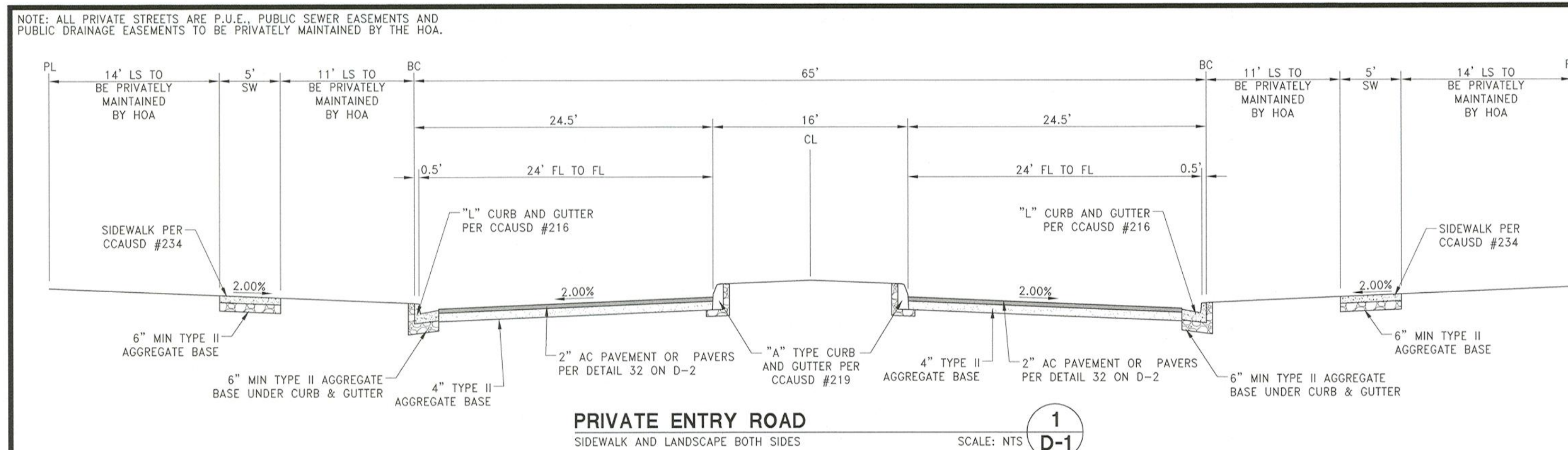
10-28-20

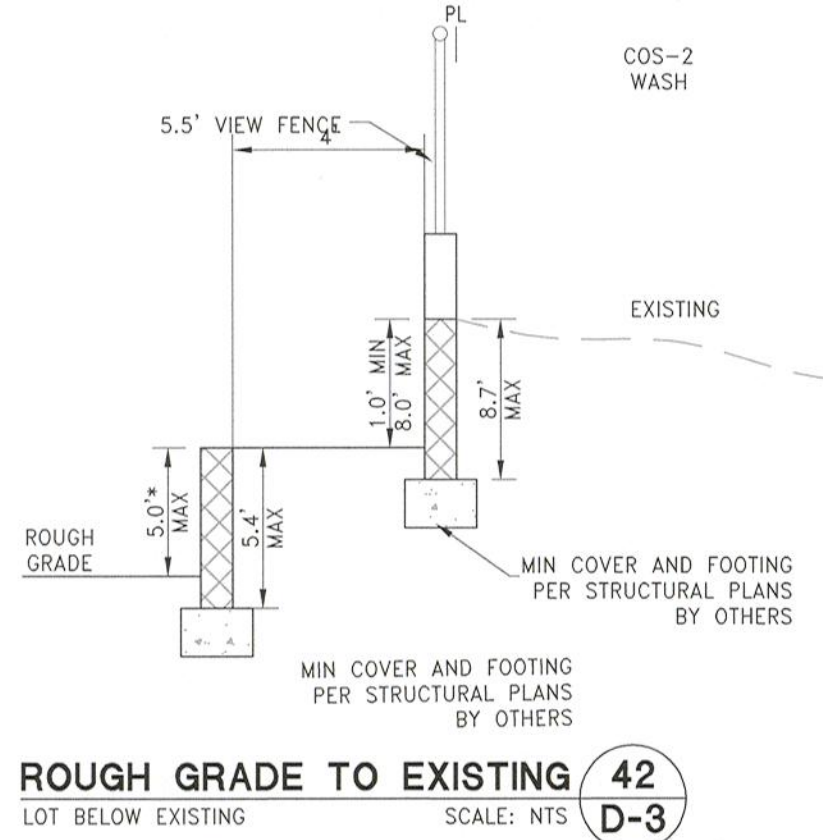
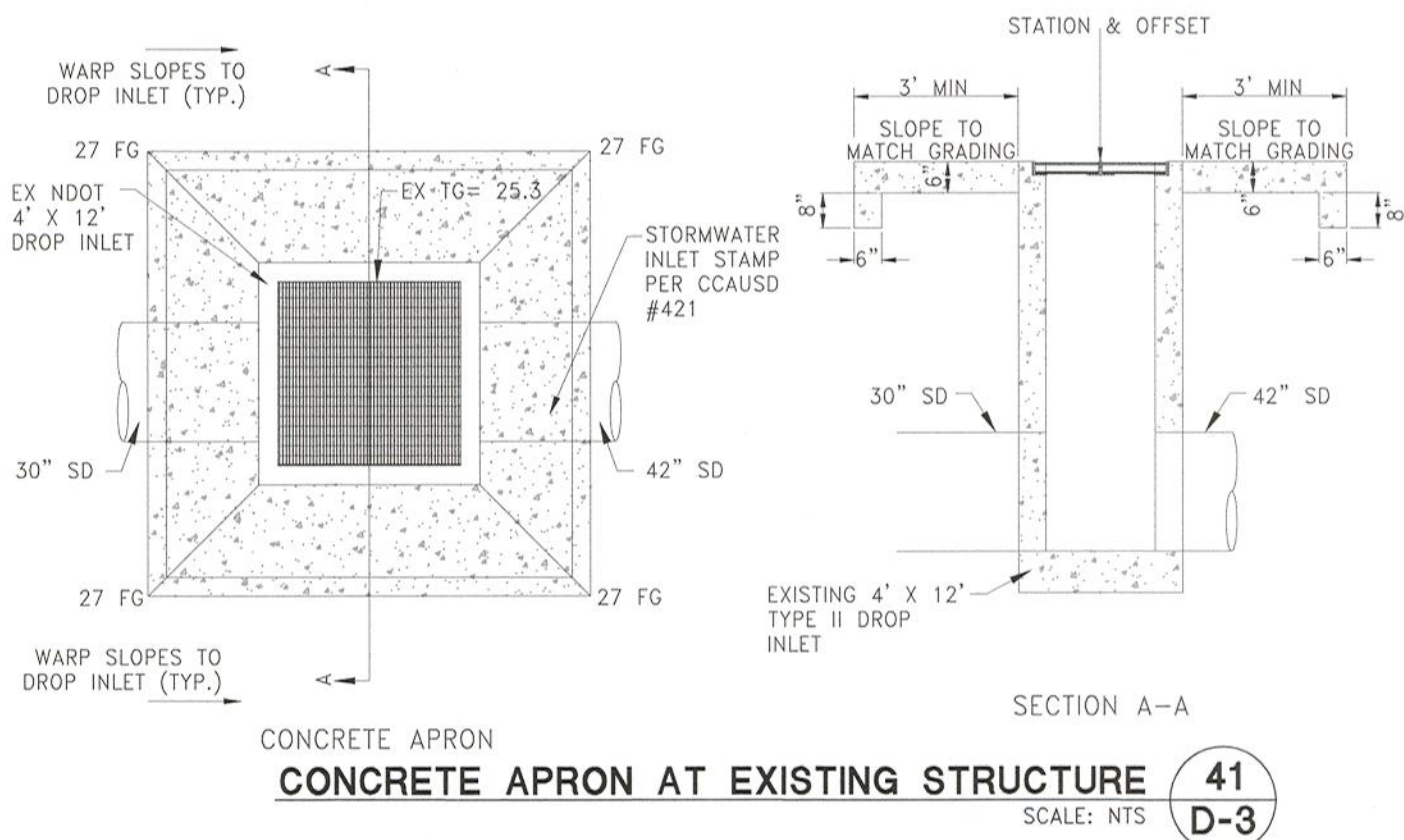
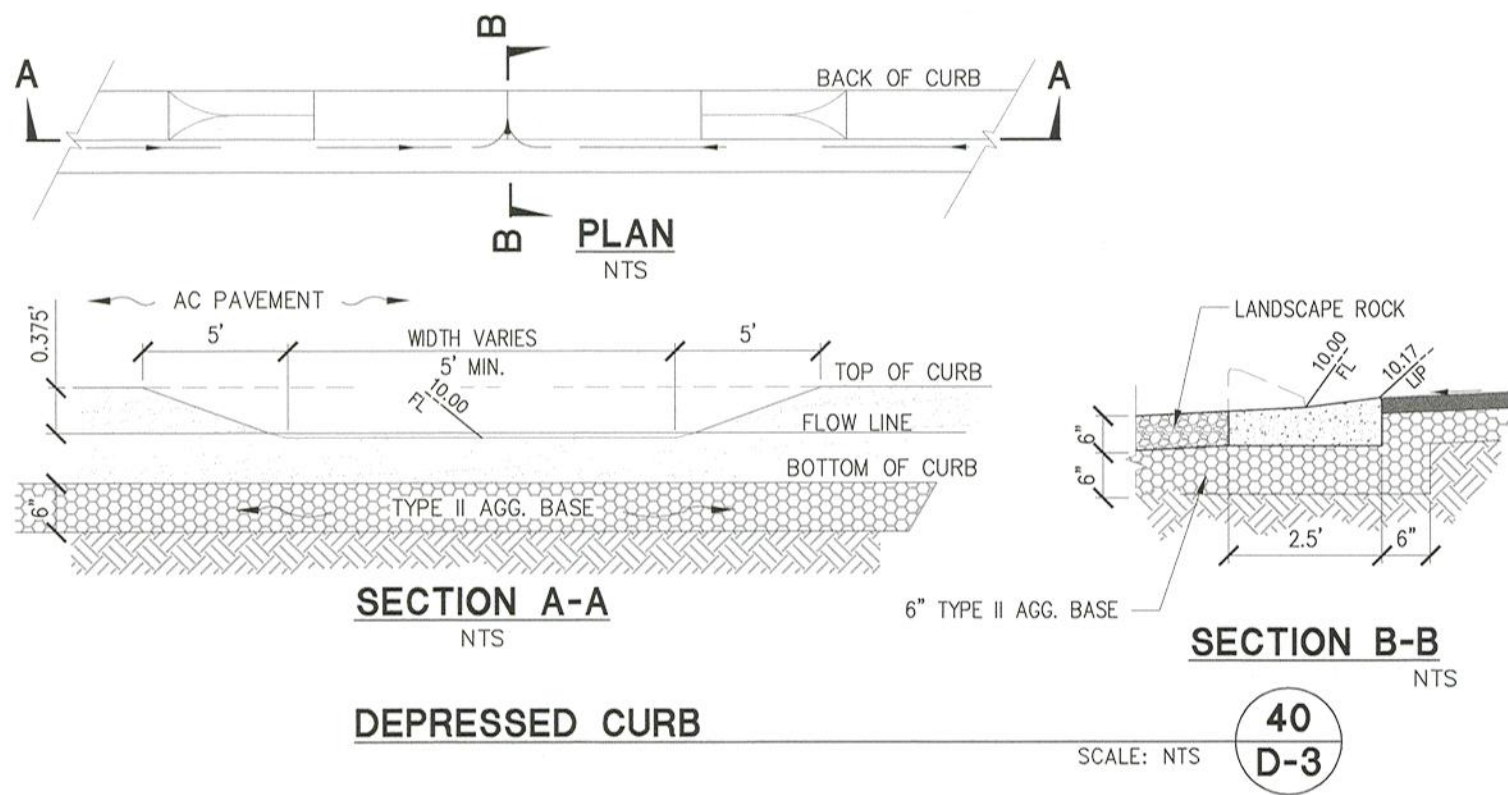
G-8

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____





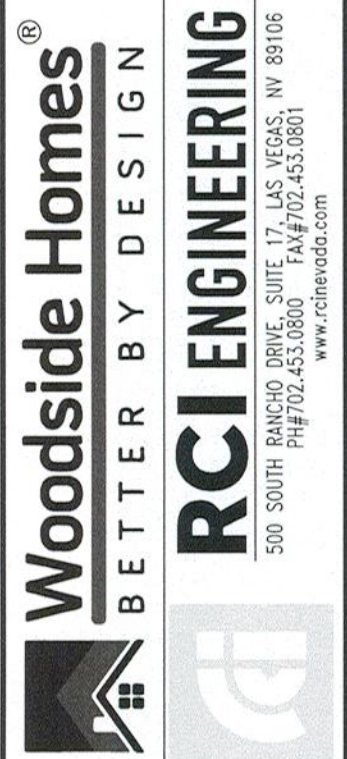
GEOTECHNICAL NOTE:
A GEOLOGIST OR GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING EXCAVATION AND MASS GRADING OPERATIONS TO EXAMINE THE SOIL CHARACTERISTICS AND GEOLOGICAL CONDITIONS ENCOUNTERED, AND TO PROVIDE PROFESSIONAL ADVICE TO THE OWNER IN THE EVENT THAT UNANTICIPATED SOIL PROBLEMS ARISE AND/OR SUBSURFACE SITE CONDITIONS ARE FOUND TO BE SIGNIFICANTLY DIFFERENT THAN DEFINED BY PRE EXPLORATION AND TESTING.

WALL & SCARP NOTE:
1. CONTRACTOR TO CONSTRUCT ALL SCARP AND MAINTAIN PROPER COVER OVER AND FROM ALL WALL FOOTINGS PER THE SOILS REPORT REFERRED TO ON THE GRADING PLANS. REPORT ANY PROBLEMS IN DOING SO TO THE DEVELOPER AND THE ENGINEER IMMEDIATELY.
2. SCARP LESS THAN 1' VERTICAL NOT SHOWN ON PLANS.
3. ALL WALL ALIGNMENTS SHALL FOLLOW SIGHT VISIBILITY ZONE ALIGNMENT AND REMAIN OUTSIDE OF SIGHT VISIBILITY ZONE.



IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1
GRADING DETAILS (SHEET 3 OF 3)

CITY OF LAS VEGAS



DATE: October 27, 2020
HORIZ. SCALE: 1"=50'
VERT. SCALE: N/A
DRAWN BY: DU
DESIGNED BY: MJD
CHECKED BY: CRZ
APPROVED BY: CRZ
PROJECT #: 4320.001D

REV	DESCRIPTION	BY	APPD	DATE

DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call before you Dig

AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

Call before you UnderGround

1-800-642-2444

FAST

Call before you UnderGround

1-702-432-5300

CALL-BEFORE YOU DO OVERHEAD

1-702-227-2929

BENCHMARK
CITY OF LAS VEGAS BENCHMARK, MONUMENT ID 5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.
ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS
SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

CONSTRUCTION NOTES

- CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4 ON SHEET D-1
- CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-48
- CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S1
- CONSTRUCT 4" SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT 5" SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- CONSTRUCT 5" TRANSITION FROM "L" TYPE CURB AND GUTTER TO "R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #5-64
- CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD #219
- CONSTRUCT 7.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 2 GRATES
- CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 4 GRATES
- CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- CALL BOX
- CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- INSTALL 3" WIDE RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.S1 SHEET 3 OF 3
- CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- CONSTRUCT DEPRESSIONED CURB PER DETAIL 41 SHEET D-3
- INSTALL RIPRAP D50=6" THICKNESS=12"
- CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOME OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG S-75

SEWER CONSTRUCTION NOTES

- INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. NO. SD-1A, SD-4, SD-5 & SD-6)
- INSTALL 8" SEWER CAP AND 1 CU-FT THRUST BLOCK @ CAP
- (TYP) INSTALL 4" SEWER LATERAL (PER DCSWCS STD. NO. SD-17, SD-22 & SD-25)
- TYPICAL LOCATION FOR SEWER LATERAL AT WATER MAIN CROSSING.
- ALL SEWER LATERALS MUST MAINTAIN 18" VERTICAL CLEARANCE BELOW WATER MAIN AT CROSSINGS.
- INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. NO. SD-1A, SD-1B, SD-4, SD-5 & SD-6) WITH CORROSION PROTECTION AND APPLY A COWD APPROVED COATING MATERIAL TO ALL BARE CONCRETE SURFACES. PER DCSWCS 3.16.8

FOR REVIEW ONLY		REV	DESCRIPTION	BY	DATE
DATE:	October 27, 2020	1	ISSUE		
HORIZ. SCALE:	1" = 50'				
VERT. SCALE:	N/A				
DRAWN BY:	DU				
DESIGNED BY:	MJD				
CHECKED BY:	CRZ				
APPROVED BY:	CRZ				
PROJECT #:	4320.0010				

Woodside Homes

BETTER BY DESIGN

RCI ENGINEERING

500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106

PH#702.453.0800 FAX#702.453.0801

www.rciengr.com

IMPROVEMENT PLANS

FALCON CREST

SUMMERLIN V22 PARCELS C AND D UNIT 1

PLAN AND PROFILE

FALCON GORGE LN STA: 9+00.00 - 16+00.00

CITY OF LAS VEGAS

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. _____ FIRST APPROVED DATE: _____

10-28-20

P-2

SHT 15 OF 21

CHRISTOPHER R. ZRINTI

Exp. 6/30/2022

CIVIL ENGINEER

No. 13976

C:\4320-Woodside\0010_V22_CD_CIVIL_PPS UNIT 1\50007_P-2_SUMMERLIN_V22_CD.dwg cwillie 10/27/20 9:14pm

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

FAST

Call
before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

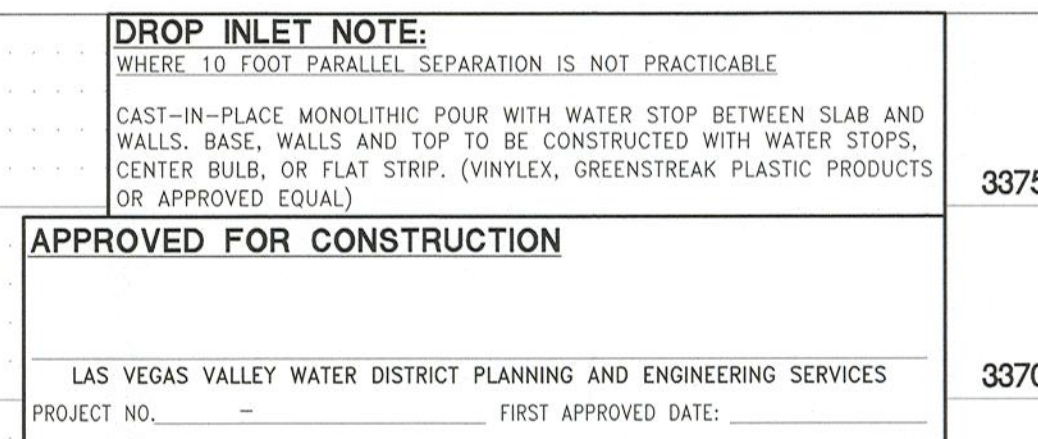
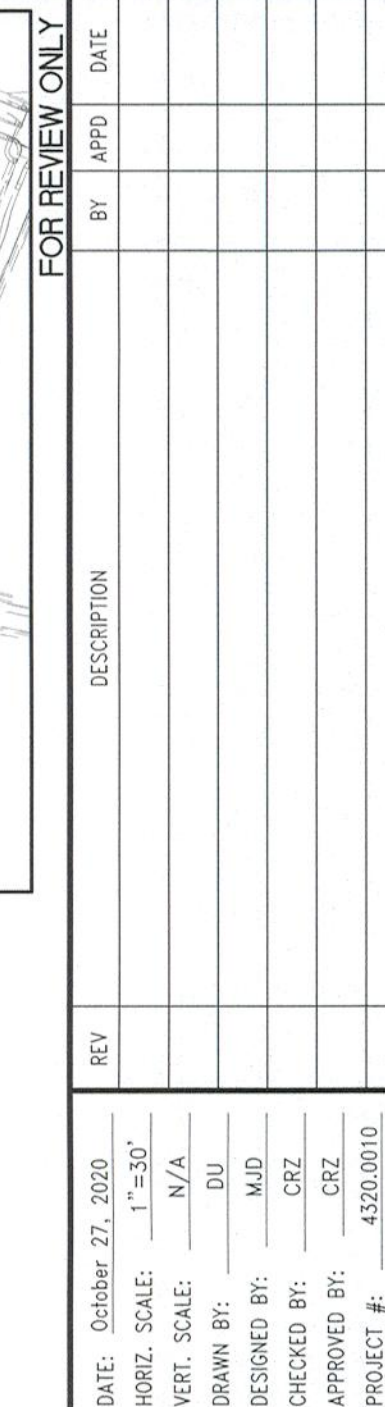
ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREON IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
ON SHEET D-1
- 2 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-48
- 3 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- 5 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6 CONSTRUCT 5' SIDEWALK PER CCAUSD #235 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 7 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOWMS OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 8 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOWMS OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 9 CONSTRUCT 8' TRANSITION FROM "L" TYPE CURB AND GUTTER TO
"R" TYPE CURB AND GUTTER PER CCAUSD #216 PER DETAIL D-2
- 10 CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-84
- 11 CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD
#219
- 12 CONSTRUCT 7.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
#421.1, #421.2 GRATES
- 13 CONSTRUCT 12.5' TYPE "CM2" DROP INLET PER CCAUSD
#412.1, #421.1, #421.2 GRATES
- 14 CONSTRUCT 15' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
#421.1, #421.2 GRATES

- (15) CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- (16) CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 5 GRATES
- (17) CALL BOX
- (18) CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- (19) INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- (20) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.51 SHEET 3 OF 3
- (21) CONSTRUCT QUINCYMAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- (22) CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- (23) CONSTRUCT DEPRESSION CURB PER DETAIL 41 SHEET D-3
- (24) INSTALL RIPRAP D50=6" THICKNESS=12"
- (25) CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
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- (28) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED CONE OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DOW S-75

21	INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-4, SD-5 & SD-6)
22	INSTALL 8" SEWER CAP AND 1 CU-F THRUST BLOCK @ CAP
23	(TYP) INSTALL 4" SEWER LATERAL (PER DCSWCS STD No. SD-17, SD-22 & SD-25)
24	TYPICAL LOCATION FOR SEWER LATERAL AT WATER MAIN CROSSING ALL SEWER LATERALS MUST MAINTAIN 18" VERTICAL CLEARANCE BELOW WATER MAIN AT CROSSINGS.
25	INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-1B, SD-4, SD-5 & SD-6) WITH CORROSION PROTECTION AND A CORROSION APPLIED TO ALL BARE CONCRETE SURFACES. PER DCSWCS 3.6.1.8



IMPROVEMENT PLANS
SUMMERLIN V22 PARCELS C AND D UNIT 1
PLAN AND PROFILE
FALCON GORGE LN STA:16+00.00 - 22+50.00

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5

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DRAWING

P-3

SHT **16** OF **21**

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Call before you Dig
AVOID HITTING UNDERGROUND
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OR
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FAST
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FREEMAN AND ARTERIAL
SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.
**CALL BEFORE
YOU DO
OVERHEAD**
1-702-227-2929

BENCHMARK

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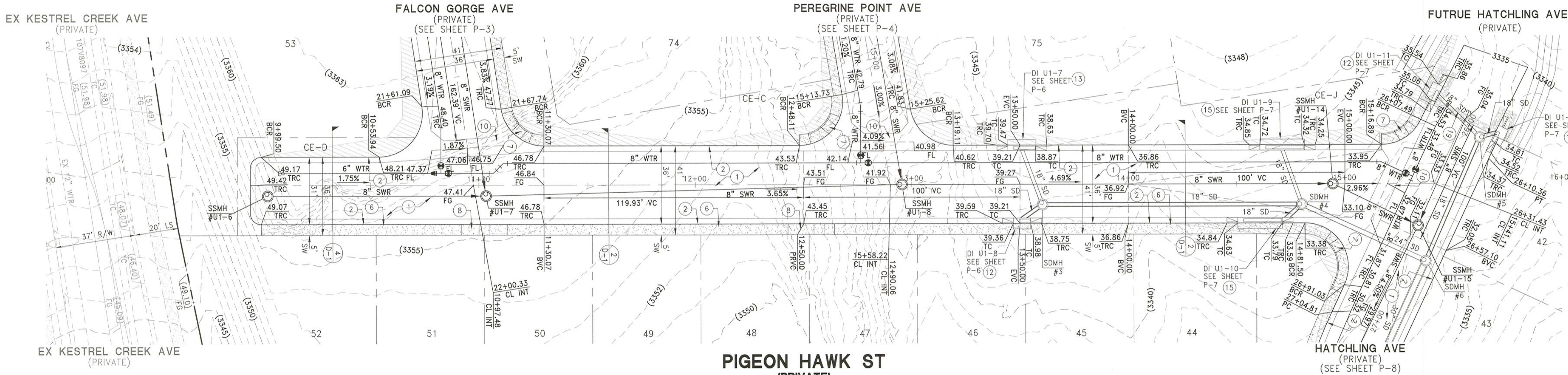
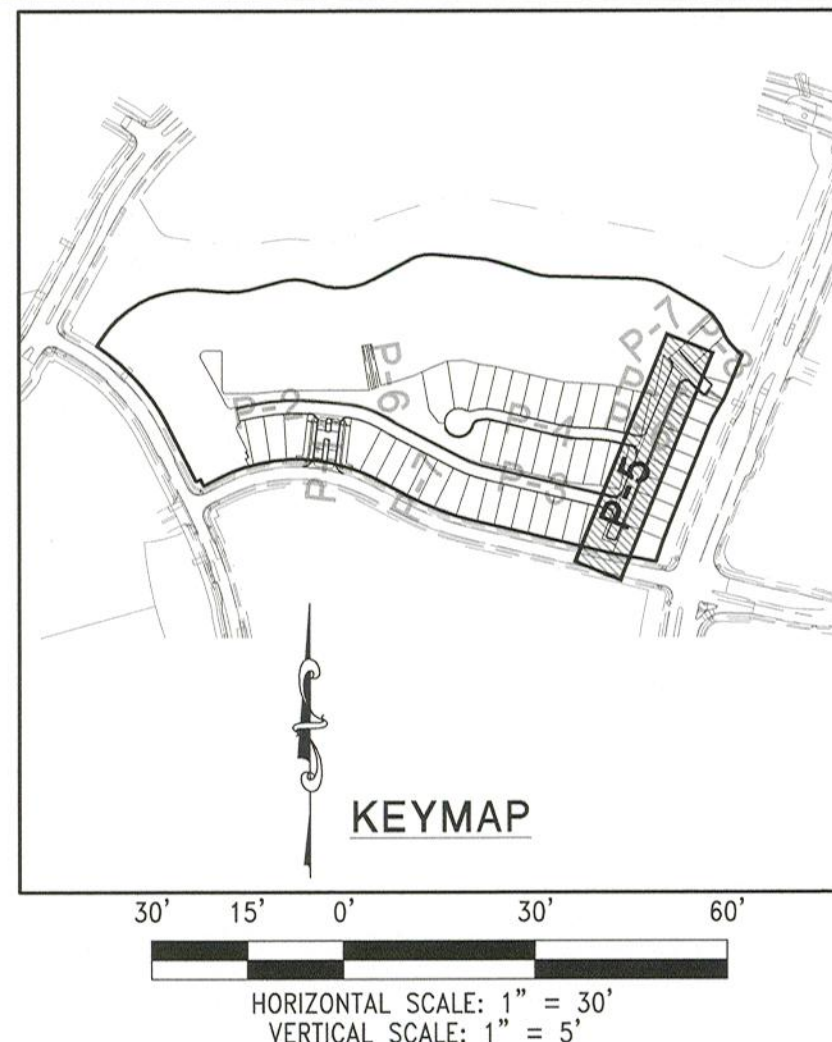
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RECORDS, CLARK COUNTY, NEVADA.

CONSTRUCTION NOTES

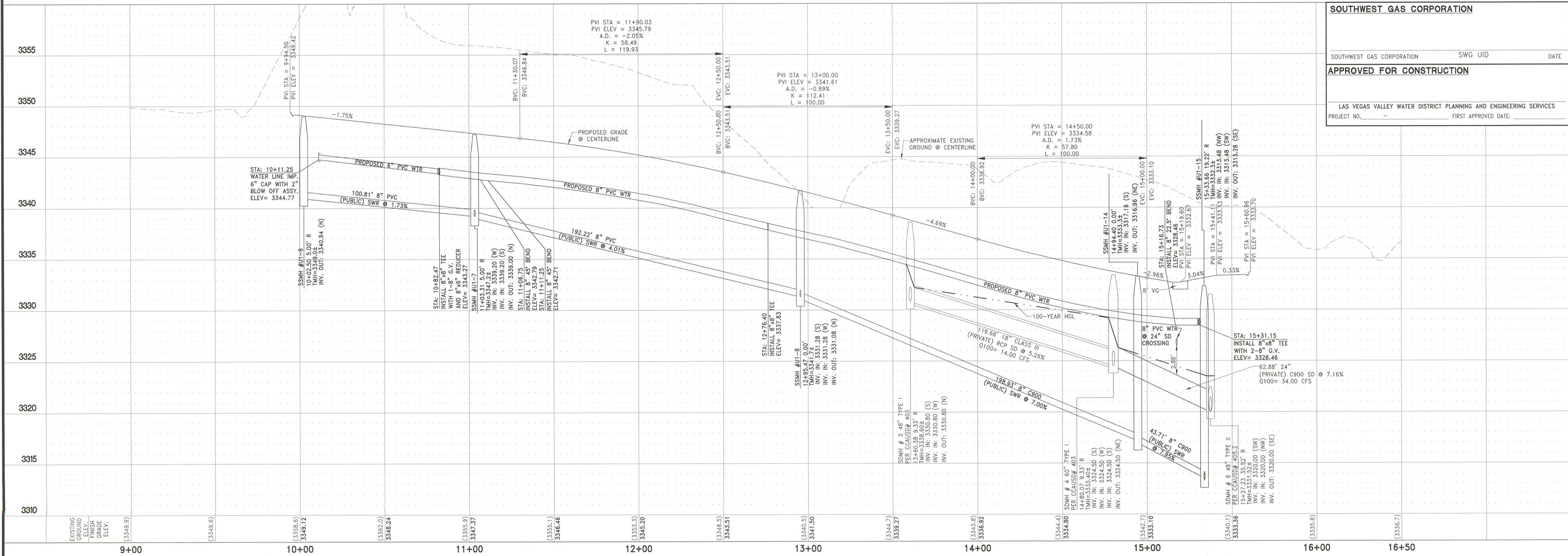
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- CONSTRUCT SIDEWALK RAMP USING ARMOR TILE TRUNCATED DOME;
OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG S-75

SEWER CONSTRUCTION NOTES

- INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. NO.
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BELOW WATER MAIN AT CROSSINGS.
- INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. NO. SD-1A,
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AND APPLY A COWI APPROVED COATING MATERIAL TO ALL BARE
CONCRETE SURFACES. PER DCSWCS 3.16.8



DROP INLET NOTE:
WHERE 10 FOOT PARALLEL SEPARATION IS NOT PRACTICABLE
CAST-IN-PLACE MONOLITHIC POUR WITH WATER STOP BETWEEN SLAB AND
WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATER STOPS,
CENTER BULB, OR FLAT STRIP. (VINYLX, GREENSTREAK PLASTIC PRODUCTS
OR APPROVED EQUAL)



SOUTHWEST GAS CORPORATION
SOUTHWEST GAS CORPORATION SWG UID DATE
APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. FIRST APPROVED DATE:

FOR REVIEW ONLY

REV	DESCRIPTION	DATE
1		
2		
3		
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12		
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DATE: October 27, 2020
HORIZ. SCALE: 1"=50'
VERT. SCALE: 1"=5'
DRAWN BY: N/A
CHECKED BY: MJD
DESIGNED BY: CRZ
APPROVED BY: CRZ
PROJECT #: 4320.0010

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IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 1
PLAN AND PROFILE
PIGEON HAWK ST STA: 9+00.00 - 16+50.00

CITY OF LAS VEGAS

10-28-20

P-5
SHT 18 OF 21

Q:\4320_Woodside\0010_V22_CD_CIVIL_IPS\UNIT 1\S0007_P-5_SUMMERLIN_V22_CD.dwg mdoz 10/27/20 7:47pm

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

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CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

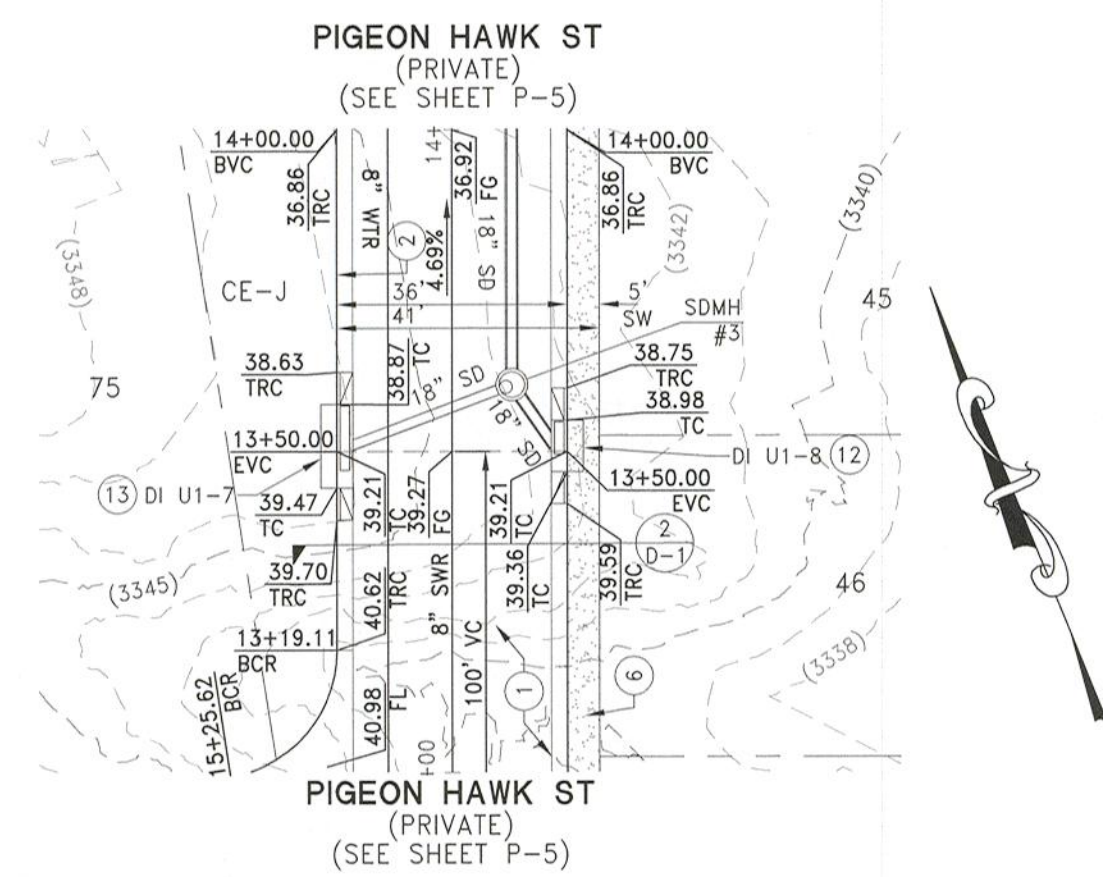
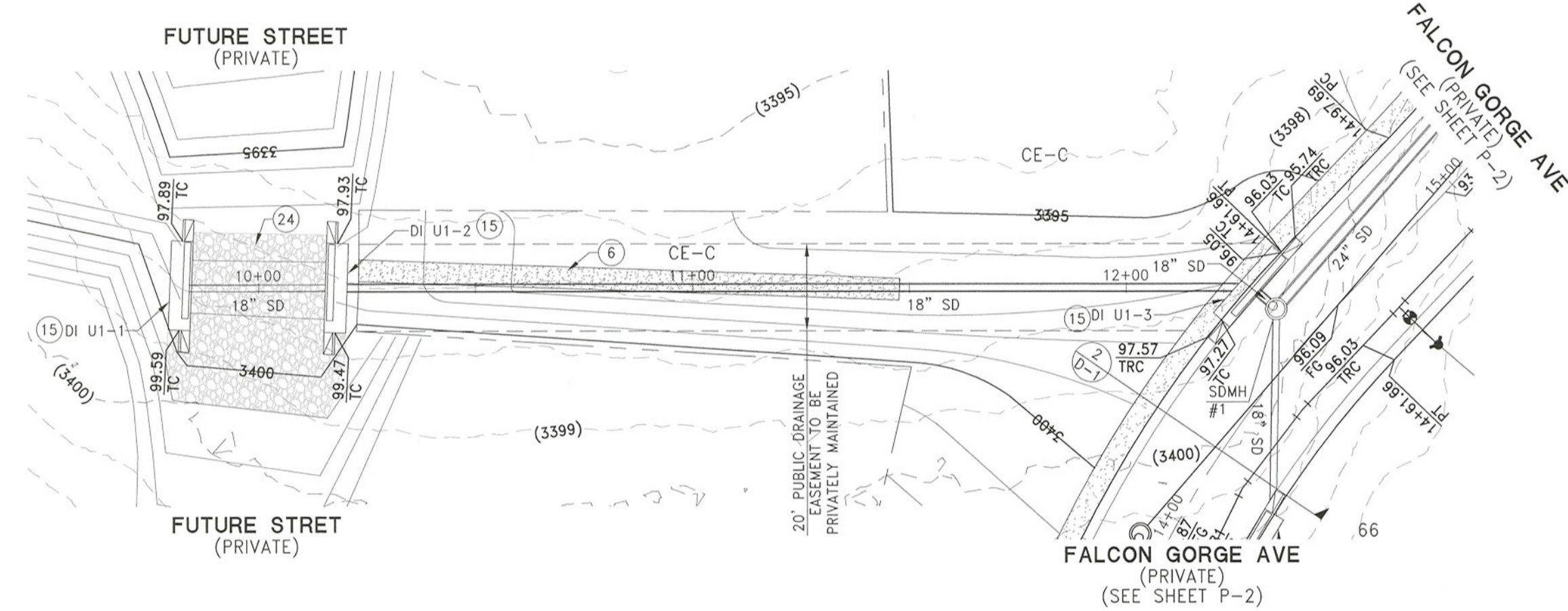
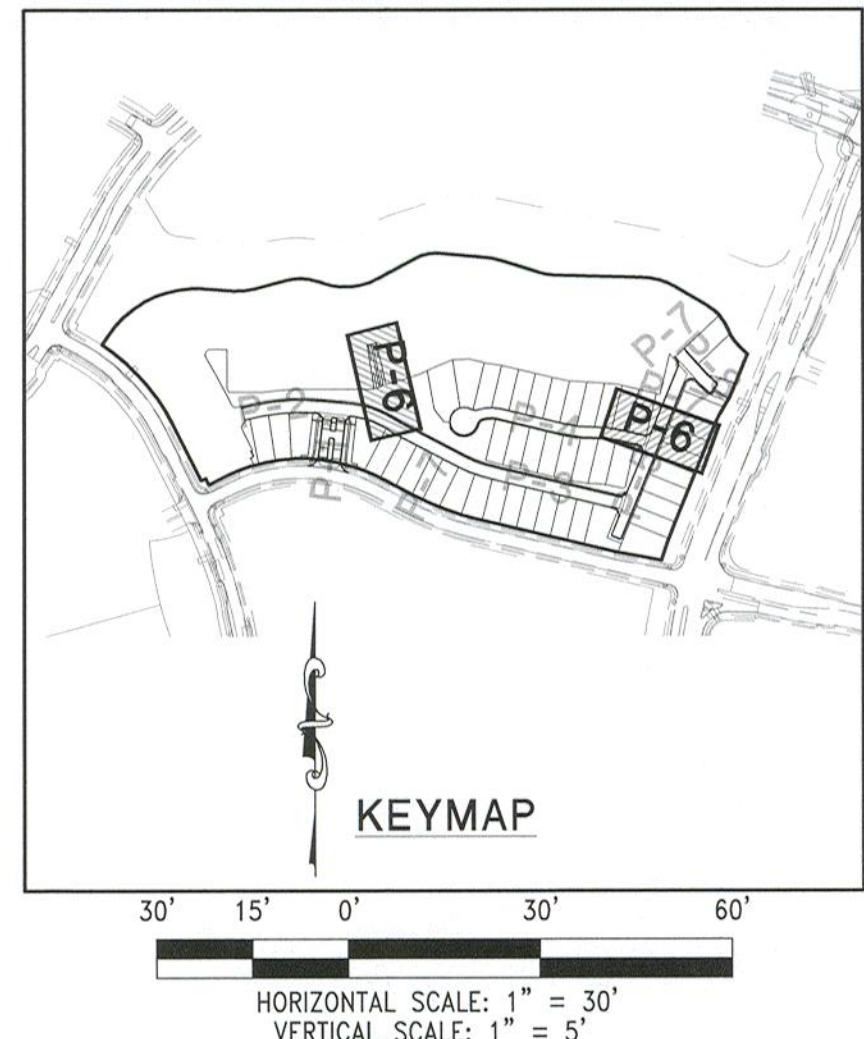
ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREON IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
ON SHEET D-1
- 2 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-48
- 3 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 SI
- 5 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6 CONSTRUCT 5' SIDEWALK PER CCAUSD #235 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 7 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- 8 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 3)
- 9 CONSTRUCT 6' TRANSITION FROM 4' TO 5' TYPE CURB AND GUTTER TO
CONSTRUCT 8' CROSS GUTTER PER DETAIL 35 SHEET D-2
- 10 CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-64
- 11 CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD
#219
- 12 CONSTRUCT 7.5' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
#412.2 & 6. GRATES
- 13 CONSTRUCT 12.5' TYPE "CM2" DROP INLET PER CCAUSD
#412.1, #420, #421, 4 GRATES
- 14 CONSTRUCT 15' TYPE "CM2" DROP INLET PER CCAUSD #412.1,
#420, #421, 5 GRATES

- (15) CONSTRUCT 20" TYPE "C2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 7 GRATES
- (16) CONSTRUCT 17.5" TYPE "C2" DROP INLET PER CCAUSD #412.1, CCAUSD #421, 6 GRATES
- (17) CALL BOX
- (18) CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- (19) INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- (20) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES PER CCAUSD 425.51 SHEET 3 OF 3
- (21) CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- (22) CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- (23) CONSTRUCT DERESSED CURB PER DETAIL 41 SHEET D-3
- (24) INSTALL RIPRAP D50=6" THICKNESS=12"
- (25) CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- (26) CONSTRUCT STRUCTURAL COLLAR PER DETAIL 38 SHEET D-2
- (27) CONSTRUCT 6' HIGH WROUGHT IRON FENCE AND/OR GATES
- (28) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOWNS OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG D5C

21	INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-4, SD-5 & SD-6)
22	INSTALL 8" SEWER CAP AND 1 CU-FT THRUST BLOCK @ CAP
23	(TYP) INSTALL 4" SEWER LATERAL (PER DCSWCS STD No. SD-17, SD-22 & SD-25)
24	TYPICAL LOCATION FOR SEWER LATERAL AT WATER MAIN CROSSING. ALL SEWER LATERALS MUST MAINTAIN 18" VERTICAL CLEARANCE BELOW WATER MAIN AT CROSSINGS.
25	INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-1B, SD-4, SD-5 & SD-6) - WITH CORROSION PROTECTION TO ALL CONCRETE SURFACES. COATING MATERIAL TO ALL BARE CONCRETE SURFACES. PER DCSWCS 3.1.6



DROP INLETS# 1, 2 & 3
(PRIVATE)

DROP INLETS# 7 & 8
(PRIVATE)

DROP INLET NOTE:
WHERE 10 FOOT PARALLEL SEPARATION IS NOT PRACTICABLE

CAST-IN-PLACE MONOLITHIC POUR WITH WATER STOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATER STOPS, CENTER BULB, OR FLAT STRIP. (VYNLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL)

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. _____ FIRST APPROVED DATE: _____

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FALCON CREST
SUMMER IN V22 PARCEL S C AND D UNIT 1

PLAN AND PROFILE

INVESTMENT, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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SHT 19 OF 21

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UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

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CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
SLV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

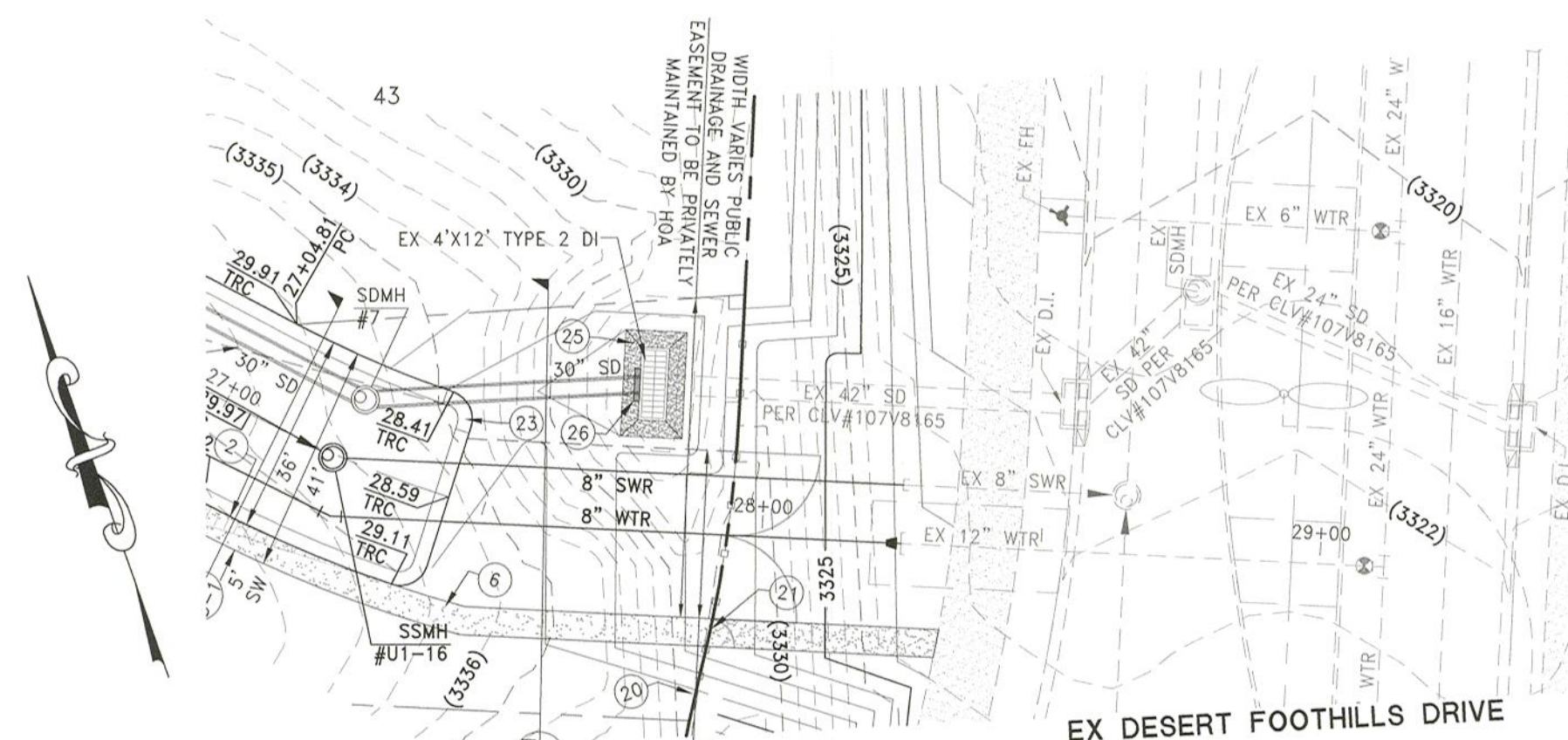
ELEVATION = 984.288 METERS
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- 1 CONSTRUCT AC PAVEMENT PER DETAIL 1 THRU 4
ON SHEET D-1
- 2 CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #S=48
- 3 CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
- 4 CONSTRUCT "R" TYPE CURB AND GUTTER PER CCAUSD #217.3 S
- 5 CONSTRUCT 4' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 6 CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "L" TYPE CURB)
- 7 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE I)
- 8 CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE I)
- 9 CONSTRUCT 5' TRANSITION FROM "L" TYPE CURB AND GUTTER TO
"R" TYPE CURB AND GUTTER PER DETAIL 35 SHEET D-2
- 10 CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #S=48
- 11 CONSTRUCT "A" TYPE ISLAND CURB AND GUTTER PER CCAUSD
#219
- 12 CONSTRUCT 7.5' TYPE "CM2" DOW INLET PER CCAUSD #412.1,
CCAUSD #421, 2 GRATES

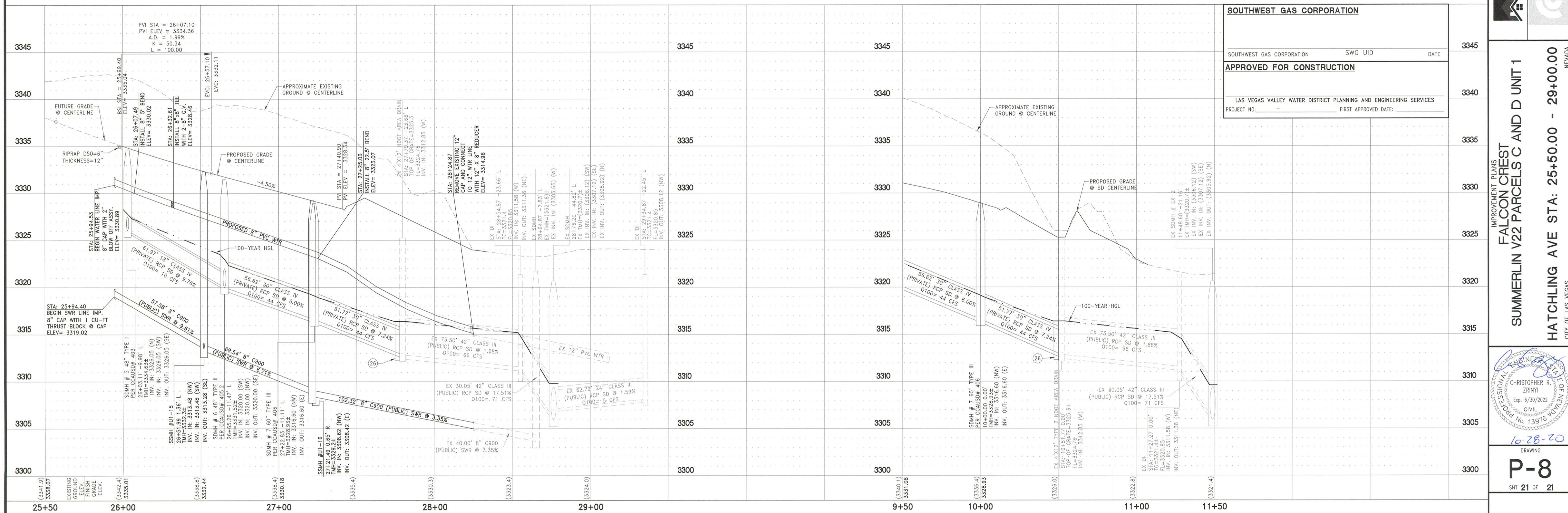
- 13 CONSTRUCT 12.5" TYPE "CM2" DROP INLET PER CCAUSD
- 14 #412.1, CCAUSD #421, 4 GRATES
- 15 CONSTRUCT 15" TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 16 CCAUSD #421, 5 GRATES
- 17 CONSTRUCT 20" TYPE "CM2" DROP INLET PER CCAUSD #412.1,
- 18 CCAUSD #421, 7 GRATES
- 19 CONSTRUCT 17.5" TYPE "CM2" DROP INLET PER CCAUSD
- 20 #412.1, CCAUSD #421, 6 GRATES
- 21 CALL BOX
- 22 CONSTRUCT ELECTRONICALLY CONTROLLED ACCESS GATES
- 23 INSTALL 3' WIDE RIPRAP D50=6" THICKNESS=12"
- 24 CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- 25 PER DSD #25.51 SHEET 1 OF 3
- 26 CONSTRUCT PEDESTRIAN ACCESS GATE (SAME SIZE AS SIDEWALK)
- 27 CONSTRUCT PAVERS PER DETAIL 40 SHEET D-2
- 28 CONSTRUCT DEPRESSIONED CURB PER DETAIL 41 SHEET D-3
- 29 INSTALL RIPRAP D50=6" THICKNESS=12"
- 30 CONSTRUCT CONCRETE APRON PER DETAIL 41 SHEET D-3
- 31 CONSTRUCT CONCRETE COLLAR PER DETAIL 38 SHEET D-2
- 32 CONSTRUCT 6" HIGH WROUGHT IRON FENCE AND/OR GATES
- 33 CONSTRUCT SIDEWALK RAMPS USING ANIOR TILE TRUNCATED, DOWNS
- 34 OR EQUIVALENT PER SUMMERLIN IMPROVEMENT STD DWG S-75

21	INSTALL 4" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-4, SD-5 & SD-6)
22	INSTALL 8" SEWER CAP AND 1 CU-FT THRUST BLOCK @ CAP
23	(TYP) INSTALL 4" SEWER LATERAL (PER DCSWCS STD. No. SD-17, SD-22 & SD-25)
24	TYPICAL LOCATION FOR SEWER LATERAL AT WATER MAIN CROSSING ALL SEWER LATERALS MUST MAINTAIN 18" VERTICAL CLEARANCE BELOW WATER MAIN AT CROSSINGS.
25	INSTALL 48" STANDARD MANHOLE (PER DCSWCS STD. No. SD-1A, SD-1B, SD-4, SD-5 & SD-6) - WITH CORROSION PROTECTION CONCRETE AND POLYETHYLENE GLASS FIBER REINFORCED MATERIAL TO ALL BARE CONCRETE SURFACES. PER DCSWCS 316.8



DROP INLET NOTE:
WHERE 10 FOOT PARALLEL SEPARATION IS NOT PRACTICABLE

CAST-IN-PLACE MONOLITHIC POUR WITH WATER STOP BETWEEN SLAB AND WALLS. BASE, WALLS AND TOP TO BE CONSTRUCTED WITH WATER STOPS, CENTER BULB, OR FLAT STRIP. (VINYLEX, GREENSTREAK PLASTIC PRODUCTS OR APPROVED EQUAL)



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CITY OF LAS VEGAS

P-8

CITY OF LAS VEGAS GENERAL NOTES	
1.	ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA, NEVADA", LATEST REVISION; THE "SUMMERLIN V22 PARCELS C AND D UNIT 2" STANDARD SPECIFICATIONS FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY, THE "UNIFORM BUILDING CODE AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2.	THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CIVIL ENGINEERING RECORDS, IMPROVED UTILITIES AS SHOWN FROM THE "SUMMERLIN V22 PARCELS C AND D UNIT 2" STANDARD SPECIFICATIONS FOR WORK IN THE SUMMERLIN AREA; LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ALL EXISTING UNDERGROUND AND OVERHEAD INTERFERENCE WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3.	THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4.	ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5.	TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6.	PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSURANCES REQUIRED FOR THIS CONSTRUCTION.
7.	EXPANSION JOINTS'REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8.	AC PAVEMENT TO BE ONE-HALF INCH (1/2") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS STOPS.
9.	CURB AND GUTTER FLOW TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10.	SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11.	CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE, AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12.	ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY GEOTECH INC., PROJECT 13735-LV, DATED 10/10/2017, APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13.	EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELIANCE THEREON.
14.	THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.E.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15.	UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APPROACHES, CROSS GUTTERS, UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER. WALL NOTES:
16.	ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS. GOOD CONDUIT AND SIGN DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17.	ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18.	CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC., TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19.	MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20.	WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC., THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21.	SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO WHERE THE SEWER SERVICE LATERAL ENTERS THE STORM DRAIN MAIN, AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAP(S) OF THE SANITARY SEWER AND STORM DRAIN SHALL BE PROVIDED TO THE CITY ENGINEER. THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
22.	CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PRIOR TO THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23.	A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

CITY OF LAS VEGAS TRAFFIC NOTES

1.	ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2.	THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3.	BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4.	WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCRoACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFY A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5.	IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VPI CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREETNAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7.	WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8.	ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC onto the PORTIONS OF the ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9.	STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.
10.	THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR MSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11.	WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13.	GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT. (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14.	ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15.	THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

CITY OF LAS VEGAS HYDRANT AND ACCESS GENERAL NOTES	
1.	ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPED FIRE CODE ORDINANCE #525Z FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2.	ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S-APPROVED PRODUCTS LISTS ARE ALLOWED TO BE INSTALLED.
3.	PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. [IFC § 105.7.12]
4.	ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. [IFC § 3310, § 3312]
5.	TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. [IFC § 507.5.7.3]
6.	ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLOW VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. [IFC § 106.3]
7.	ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A. APPROVED AND SHALL BE RATED FOR 300 FT. APPROXIMATE WORKING PRESSURE. [IFC § 507.2.1, NFPA 24]
8.	PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. [IFC § 507]
9.	PRIMATE HYDRANTS SHALL BE PAINTED RED. [IFC § 507.5.7.1]
10.	PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. [IFC § 507]
11.	FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: [IFC § C102] * RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED. * COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12.	WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING. TO WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, FIRE HYDRANTS SHALL BE INSTALLED OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. [IFC § C102.8]
13.	NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE PERIPHERY OF THE RADIUS OF THE CUL-DE-SAC.
14.	NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC § C102.12]
15.	A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.4]
16.	THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. [IFC § C102.7]
17.	THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200FT. [IFC § C102.6]
18.	THE TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. [IFC § C104]
19.	ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. [IFC § 503.2.3]
20.	THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12%. ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6X FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6X. [IFC § 503.2.7, § 503.2.8]
21.	THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. [IFC § 503.2.4]
22.	VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 IN. [IFC § 503.2.1]
23.	FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES, NOT LESS THAN 32 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD, NOT LESS THAN 24 FT WIDE, FLOW-LINE TO FLOW-LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 21 FT. [IFC § 503.1.1]
24.	A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. [IFC § 503.1.1]
25.	APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD-ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. [IFC § 503.1.2]
26.	ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. [IFC § 503.2.5]
27.	ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANE. SIGNS SHALL BE PLACED AT THE BEGINNING OF THE FIRE LANE, AND AT THE END OF THE FIRE LANE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. [IFC § 503.3]
28.	ELECTRICALLY CONTROLLED VALVES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM.SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC § 503.6 AND IFC APPENDIX M.

CITY OF LAS VEGAS GRADING NOTES

1.	IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2.	IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3.	CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4.	THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5.	THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6.	CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED: HORIZONTAL A. PAVEMENT AREA SUBGRADE 0.1+ "±0.0" TO -0.1" SEE SOILS REPORT B. ENGINEERING FILL 0.5+ "±0.1" TO -0.1" SEE SOILS REPORT
7.	ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8.	THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WORK.
9.	THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10.	IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMES, ROAD SIGNS AND BARRICADES, ETC.

STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

1.	THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2.	ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3.	TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 HOURS AFTER THE FIRST PORTION OF THE PROJECT HAS TEMPORARILY BEEN STABILIZED. SUCH PRACTICES MAY VARY, BUT MUST BE APPROVED BY THE CITY OF LAS VEGAS. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION NV1910000, SECTION III.A.5.
4.	AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE AND MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY. SUCH EXCEPTIONS TO WEEKLY INSPECTIONS MAY BE REQUESTED BY THE CONTRACTOR FOR THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DIVISION. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NV1910000, SECTION III.A.12.
5.	ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

SOUTHWEST GAS CONSTRUCTION NOTES

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1.	IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020
2.	MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC SHALL BE AT LEAST 12-INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS
3.	FOR VALVE ADJUSTMENT CONTACT 702-528-7881 14 DAYS PRIOR TO CONSTRUCTION
4.	IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702-365-2099

CAUTION: HIGH PRESSURE GAS!!

CALL SOUTHWEST GAS AT 702-778-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION

SOUTHWEST GAS CORPORATION DATE

CITY OF LAS VEGAS SEWER NOTES	
1.	ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS" CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2.	IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3.	CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4.	POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D-3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5.	ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETOIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6.	TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y" 'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7.	WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8.	ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9.	THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REMOVED OR SHOWN OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10.	INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C-900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT #	
(REVISED 08/01/2017)	
1.	NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (702-258-7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2.	ALL WORK SHALL CONFORM TO LVVWD STANDARD PLANS, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS), THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3.	ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4.	A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5.	ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6.	ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7.	ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8.	ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9.	ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10.	THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 702-258-3152 OR 702-258-3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11.	ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12.	ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCTS' LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13.	TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1-800-227-2600.
14.	THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.
15.	ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS ABUTTING THE TEN FOOT EASEMENT OF A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.
16.	NO LEAD COMPLIANCE NOTE: TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES
PROJECT NO. - FIRST APPROVED DATE:

CITY OF LAS VEGAS STREETLIGHT NOTES

1.	ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION; AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADOPTED SPECIAL AREA STANDARDS.
2.	NO DEVIATION OF STREET LIGHT, PULLED BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF TRAFFIC ENGINEERING AND THE CITY ENGINEER.
3.	ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
4.	ALL STREET LIGHTING CONDUITS MUST SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "G" OF OFF.
5.	ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.
6.	AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEF0 PRIOR TO ANY PRE-FINAL INSPECTION. THE ASBUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.
7.	SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE CIVIL PLANS.
8.	IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.
9.	WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.
10.	THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.
11.	THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED UNDER THIS DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION AND MAINTENANCE OF THE STREET LIGHTS. THE CONTRACTOR OR HIS AGENT SHALL BE RESPONSIBLE FOR PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DIVISION (TEF0) OR SERVICE/S INSTALLED UNDER THIS PLAN DESIGN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEF0) AT (702) 229-6531.

DISCLAIMER NOTE:

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Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.

Call before you UnderGround
FREQUENT AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

LEGEND		QUANTITY ESTIMATE		
EXISTING	PROPOSED	DESCRIPTION	PUBLIC	PRIVATE
		ROW OR PROPERTY LINE	- SY	6,727 SY
		EASEMENT LINE	- CY	1,105 CY
		CENTERLINE	- LF	- LF
		CURB	- LF	3,864 LF
		CURB & GUTTER (24-INCH)	- LF	- LF
		CURB & GUTTER (30-INCH)	- LF	- LF
		"L" TYPE ISLAND CURB	- SF	412 SF
		CONCRETE VALLEY GUTTER	- SF	8,952 SF
		5-INCH CONCRETE SIDEWALK	- EA	- EA
		SIDEWALK UNDERDRAIN	- EA	- EA
		3/4" WATER METER	- EA	- EA
		3/4" IRRIGATION METER WITH 1" RPPA	- EA	- EA
		POWER/GAS/PHONE/CABLE SERVICE TO LOTS	- EA	- EA
		SURVEY MONUMENTS	- EA	- EA
		ADA RAMPS	- LF	- LF
		4-INCH SEWER LATERAL	- LF	- LF
		8-INCH PVC SEWER MAIN	- LF	- LF
		8-INCH C-900 SEWER MAIN	- EA	- EA
		48-INCH SEWER MANHOLES	- EA	- EA
		BACKWATER VALVES	- LF	- LF
		WATER LATERAL	- LF	- LF
		6-INCH PVC WATER MAIN	- LF	- LF
		8-INCH PVC WATER MAIN	- LF	- LF
		12-INCH PVC WATER MAIN	- LF	- LF
		12-INCH DIP WATER MAIN	- LF	- LF
		FIRE HYDRANT	- SF	- SF
		FIRE CRASH GATE (WROUGHT IRON)	- LF	- LF
		LIGHT STANDARD (STD. BASE)	- EA	- EA
		1-1/4 INCH STREET LIGHT CONDUIT	- EA	- EA
		SL 200 AMP SERVICE PEDESTAL	- EA	- EA
		STREET SIGNS -STAND ALONE	- EA	- EA
		#3 PULLBOX	- EA	- EA
		USD 601 BARRICADE (5FT)	- EA	- EA
		1" IRRIGATION METER WITH 1" RPPA	- EA	- EA

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811

OR
1-800-227-2600

FAST



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before you

UnderGround
1-702-432-5300

FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION



AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

CALL BEFORE
YOU DO
OVERHEAD

1-702-227-2929

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE
SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH,
RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN
VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREON
IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL
RECORDS, CLARK COUNTY, NEVADA.

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT. APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH BRIDGES, ETC. ETC. THIS DOES NOT INCLUDE ANY WORK WITHIN PUBLIC STREET RIGHT-OF-WAY. THIS DOES NOT INCLUDE PRIVATE STREETS, THE REVIEW OF CIVIL IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING PERMIT APPLICATION."

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBERS 32003C2150E AND 32003C2125E DATED SEPTEMBER 27, 2002, THE SITE IS LOCATED IN A ZONE "X".

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 243. OWNER IS ALSO RESPONSIBLE TO
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OBSCURED DURING CONSTRUCTION.

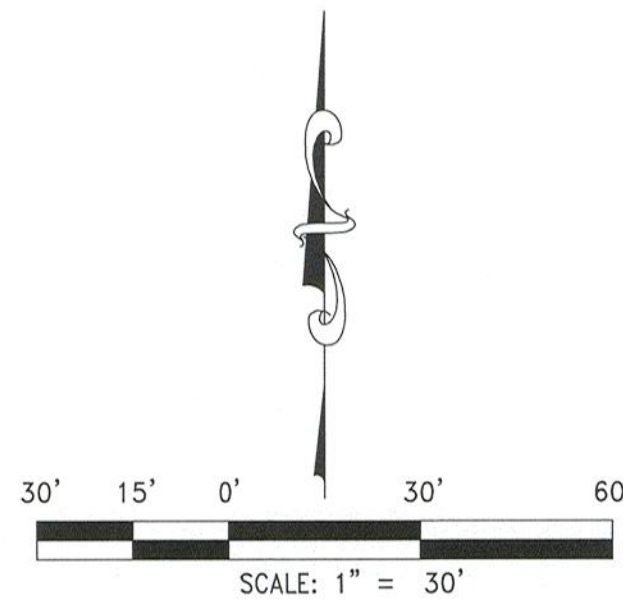
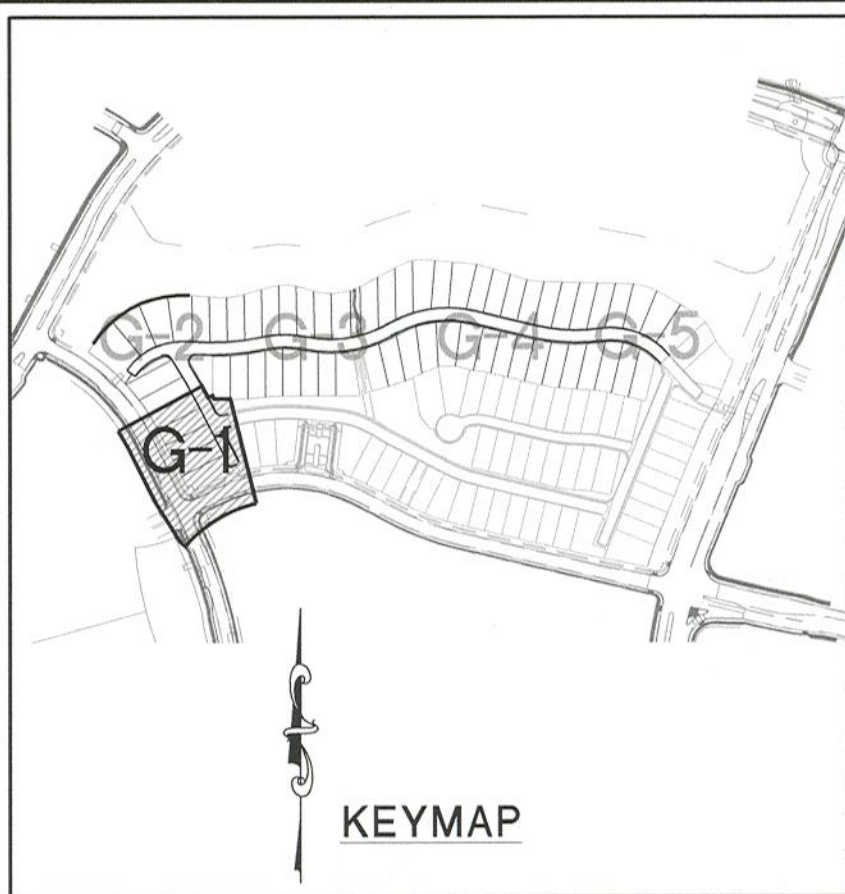
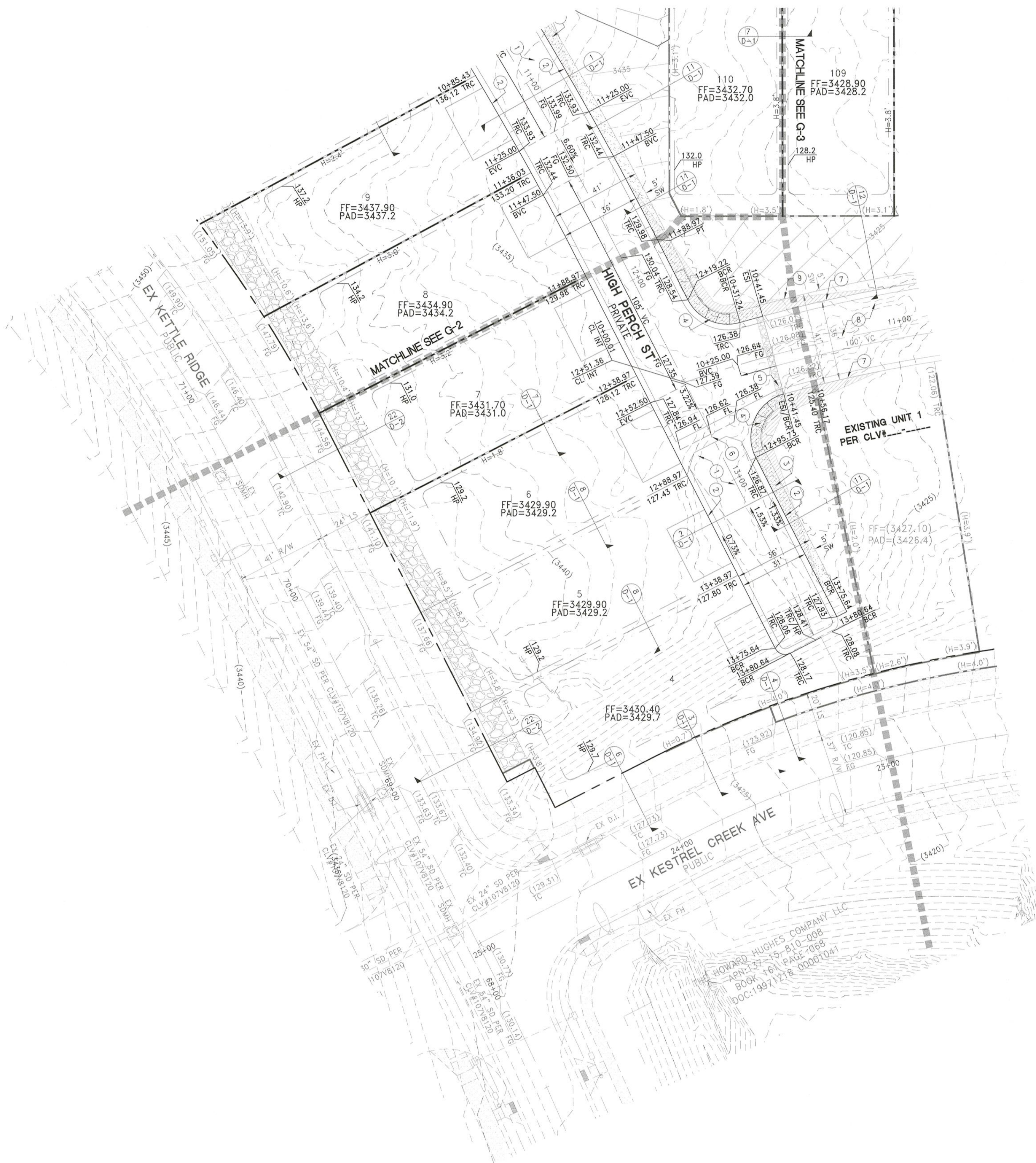
NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

1. CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
2. SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
3. SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
4. ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
5. THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES
6. ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
7. DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRASSES ON VERTICAL TANGENTS TO VERIFY SLOPES.
8. SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: Geotek
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
9. CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 3.856 CY
NET FILL: 3.856 CY
10. SEE DETAIL 25/D-2 FOR TYPICAL LOT DRAINAGE
11. FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY THE HOA

ALL PRIVATE STREETS ARE P.O.E., PUBLIC
SEWER EASEMENTS AND PUBLIC DRAINAGE
EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- 1) CONSTRUCT AC PAVEMENT PER DETAILS 1 AND 2
ON SHEET D-1
- 2) IMPROVEMENT STD DWG #5-48
"ROLL" TYPE CURB AND GUTTER PER SUMMERLIN
- 3) CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH
THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
- 4) CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED
DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
- 5) RIPRAP TO BE REMOVED
- 6) CONSTRUCT 8' CROSS GUTTER PER SUMMERLIN
IMPROVEMENT STD DWG #5-64
- 7) EXISTING "ROLL" TYPE CURB AND GUTTER TO REMAIN
- 8) EXISTING PAVEMENT TO REMAIN
- 9) EXISTING SW TO REMAIN
- 10) EXISTING PEDESTRIAN ACCESS GATE PER UNIT 1
- 11) EXISTING WROUGHT IRON FENCE TO REMAIN
- 12) EXISTING VALLEY GUTTER TO REMAIN
- 13) EXISTING SIDEWALK RAMP TO REMAIN

[illegible]

DATE:	October 27, 2020
HORIZ. SCALE:	1" = 30'
VERT. SCALE:	N/A
DRAWN BY:	DU
DESIGNED BY:	MJD
CHECKED BY:	CRZ
APPROVED BY:	CRZ
PROJECT #:	4320.0010

Woodside Homes®
BETTER BY DESIGN

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH#702.453.0600 FAX#702.453.0601
www.rcienvado.com

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 2
GRADING PLAN (SHEET 1 OF 5)
CITY OF LAS VEGAS
NEVA

10-60-00
DRAWING
G-1
SHT 3 OF 9

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE _____

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BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT ID
5LV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE
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RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN
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BUILDING PERMIT NOTE

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ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT
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FLOOD ZONE NOTE

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
(FIRM) COMMUNITY PANEL NUMBERS 32003C2150E AND
32003C2125E DATED SEPTEMBER 27, 2002, THE SITE IS
LOCATED IN A ZONE "X".

SURVEY MONUMENT NOTE

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GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: GeoTek
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
- CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 3,856 CY
NET FILL: 3,856 CY
- SEE DETAIL 25/D-2 FOR TYPICAL LOT DRAINAGE
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NOTE

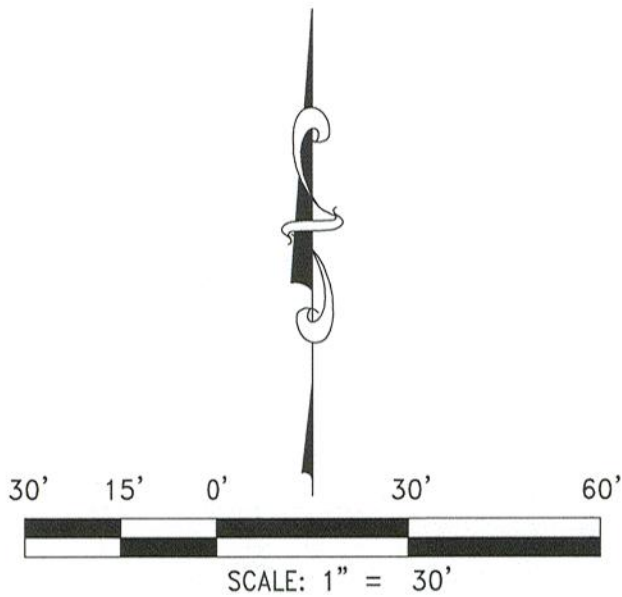
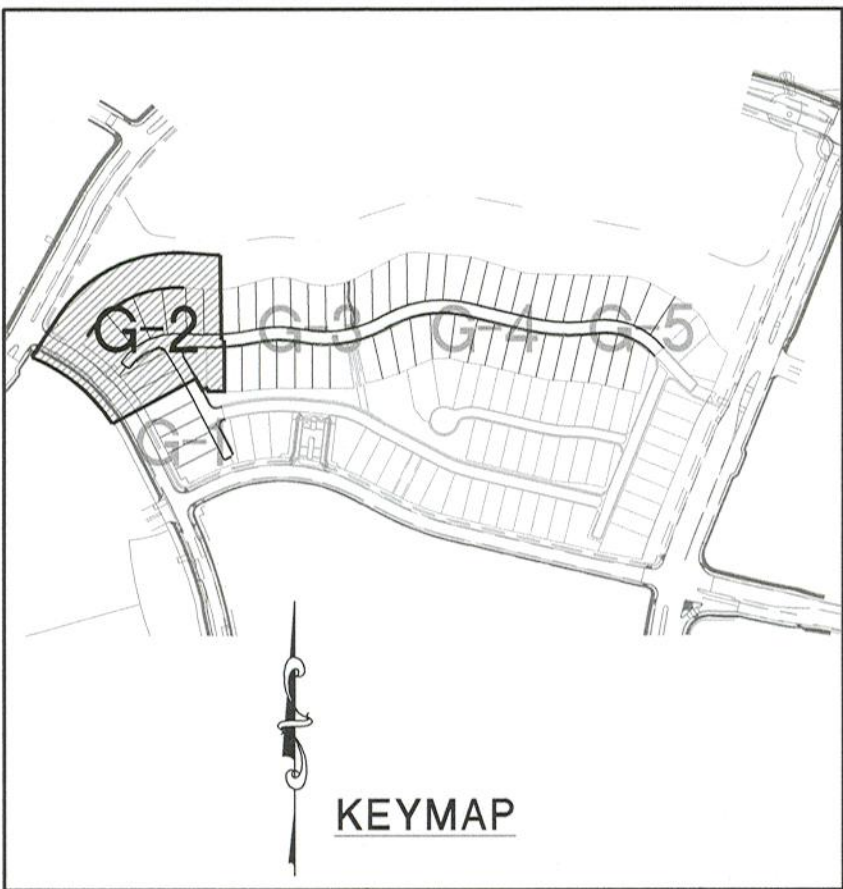
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SEWER EASEMENT NOTE

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CONSTRUCTION NOTES

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- EXISTING VALLEY GUTTER TO REMAIN
- EXISTING SIDEWALK RAMP TO REMAIN

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CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE

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RCI ENGINEERING



IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 2

GRADING PLAN (SHEET 2 OF 5)

CITY OF LAS VEGAS

10/27/20 9:20pm



10-29-20

DRAWING

G-2

SHT 4 OF 9

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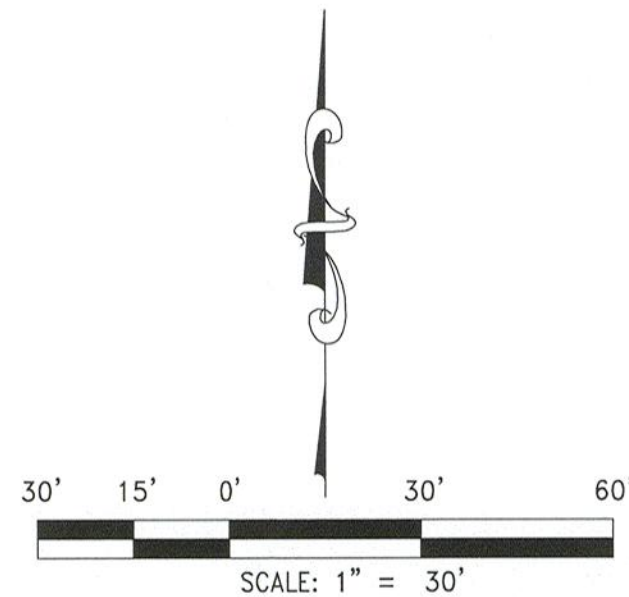
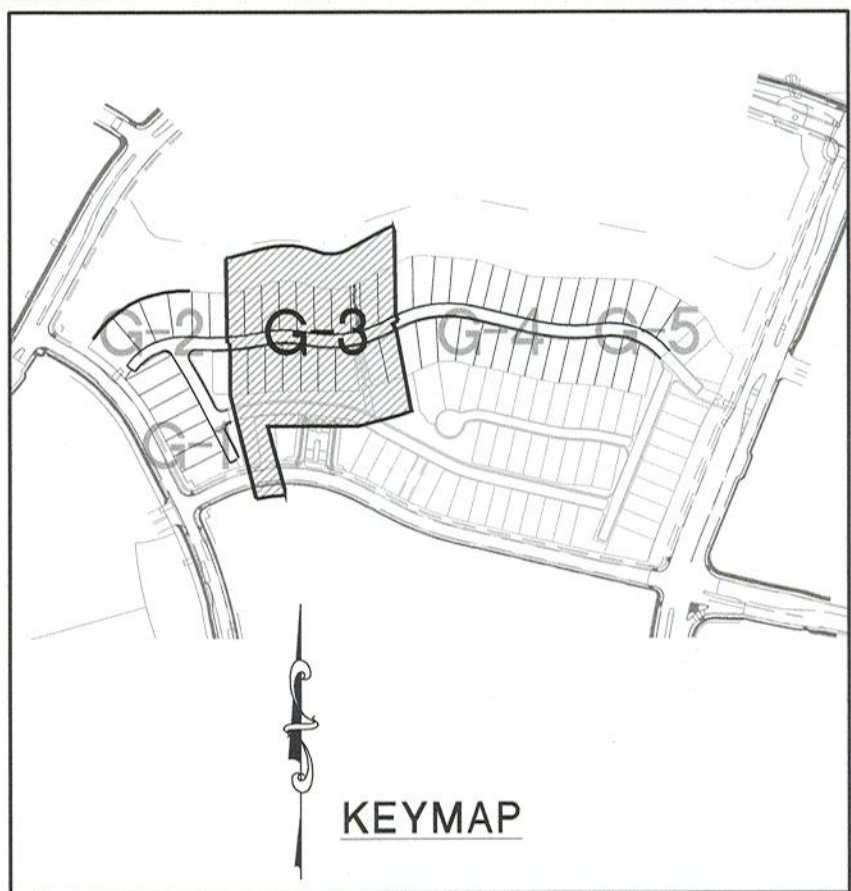
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CONSTRUCTION NOTES

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- EXISTING WROUGHT IRON FENCE TO REMAIN
- EXISTING VALLEY GUTTER TO REMAIN
- EXISTING SIDEWALK RAMP TO REMAIN

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED
DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE

Woodside Homes
BETTER BY DESIGN

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 2

CHRISTOPHER R. ZRINYI
Exp. 6/30/2022
CIVIL
No. 13976

G-3
SHT 5 OF 9

GRADING PLAN (SHEET 3 OF 5)

CITY OF LAS VEGAS

NEVADA

DATE: October 27, 2020
HORIZ. SCALE: 1"=30'
VERT. SCALE: 1"=50'
DRAWN BY: DU
DESIGNED BY: MJD
CHECKED BY: CRZ
APPROVED BY: 4320.0010
PROJECT #:

DESCRIPTION
REV

BY
DATE

DISCLAIMER NOTE:

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND OR OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY CHANGES OR DISCREPANCIES.

Call before you Dig
AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

**Call
811**

OR
1-800-227-2600

FAST

Call
before you
UnderGround

1-702-432-5300

FREIGHTWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY.

**CALL BEFORE
YOU DO
OVERHEAD**

1-702-227-2929

BENCHMARK

CITY OF LAS VEGAS BENCHMARK, MONUMENT 10
SLV0926W6, RIVET AND PLATE IN TOP OF CURB AT
THE SE CORNER OF CARRIAGE HILL AND FAR HILLS.

ELEVATION = 984.288 METERS
ELEVATION = 3229.29 U.S. SURVEY FEET (NAVD 88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF THE
SOUTH LINE OF SECTION 22, TOWNSHIP 20 SOUTH,
RANGE 59 EAST, M.D.M. AS SHOWN ON "SUMMERLIN
VILLAGE 21 - UNIT 3" AS SHOWN BY MAP THEREOF
IN BOOK 159, PAGE 50 OF PLATS, OFFICIAL
RECORDS, CLARK COUNTY, NEVADA.

BUILDING PERMIT NOTE

ALL STRUCTURES SHOWN OR INDICATED ON THIS SUBMITTAL
WITHIN THE PROPERTY REQUIRE A BUILDING PERMIT
APPLICATION AND SUBMITTAL THIS INCLUDES BUILDINGS, ABOVE
GROUND TANKS, SIGNS, RETAINING WALLS, FENCES, TRASH
ENCLOSURES, SHADE STRUCTURES, STAIRWAYS, RAMPS, LIGHT
POLES, LIGHT BOLLARDS, ETC. THIS DOES NOT INCLUDE ANY
FLOOD CONTROL STRUCTURE SUCH AS PIPES, CULVERTS, ARCH
CULVERTS, HEADWALLS, ETC. THIS DOES NOT INCLUDE ANY
WORK WITHIN A PUBLIC STREET RIGHT-OF-WAY. THIS DOES
NOT INCLUDE PRIVATE STREETS. THE REVIEW OF CIVIL
IMPROVEMENT AND/OR GRADING PLANS DOES NOT INCLUDE
ANY REVIEW OF ANY STRUCTURE THAT REQUIRES A BUILDING
PERMIT APPLICATION.

FLOOD ZONE NOTE

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP
(FIRM) COMMUNITY PANEL NUMBER 52003C2150E AND
52003C2125E DATED SEPTEMBER 27, 2002, THE SITE IS
LOCATED IN A ZONE "X".

SURVEY MONUMENT NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS
REQUIRED BY CITY OF LAS VEGAS AND CLARK COUNTY UNIFORM
STANDARD DRAWING NUMBER 245. OWNER IS ALSO RESPONSIBLE TO
REPLACE ALL SURVEY MONUMENTATION DAMAGED, DESTROYED, OR
OBSOLETE DURING CONSTRUCTION.

SIGHT VISIBILITY ZONE

NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS
PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT
(MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB
EXISTS) WITHIN THE SIGHT VISIBILITY ZONES.

ENGINEERS NOTES

- CONTRACTOR IS RESPONSIBLE FOR DUST AND EROSION CONTROL DURING CONSTRUCTION.
- SEE DETAIL SHEET FOR ON-SITE PAVEMENT SECTIONS. CONTRACTOR TO VERIFY WITH SOILS REPORT.
- SEE FINAL MAP FOR EXACT PROPERTY LINE DIMENSIONS.
- ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.
- THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCIES.
- ALL GRADING SHALL CONFORM TO SOILS REPORT RECOMMENDATIONS.
- DURING CONSTRUCTION, SURVEYORS AND CONTRACTORS MUST VERIFY THAT ALL STREETS AND LOTS HAVE POSITIVE DRAINAGE. SAME MUST UTILIZE AT LEAST THREE GRADES ON VERTICAL TANGENTS TO VERIFY SLOPES.
- SOIL REPORT NOTE:
GRADING SHALL BE IN ACCORDANCE
WITH SOILS REPORT PREPARED BY:
ENGINEER: GeoTek
PROJECT NO. 15573-LV
DATED: JUNE 25, 2020
- CUT/FILL ESTIMATES
EXISTING TO FINISH GRADE ELEVATIONS
NET CUT: 3,851 CY
NET FILL: 3,856 CY
- SEE DETAIL 25/D-2 FOR TYPICAL LOT DRAINAGE
- FOR STORMWATER RUNOFF MANAGEMENT NOTES REFER TO SHEET N-1

NOTE

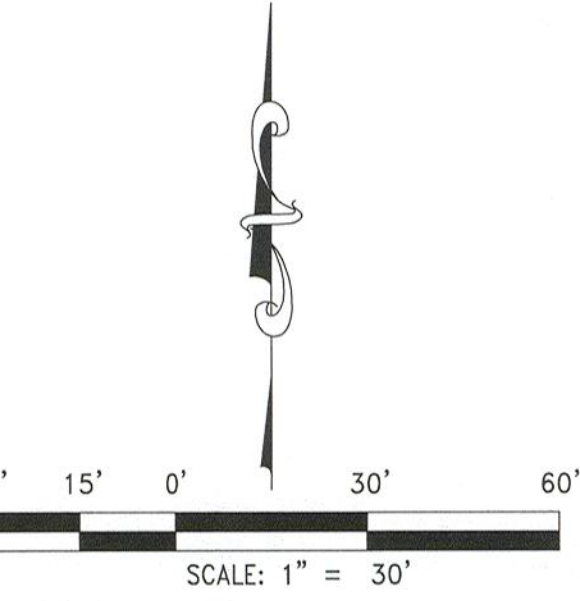
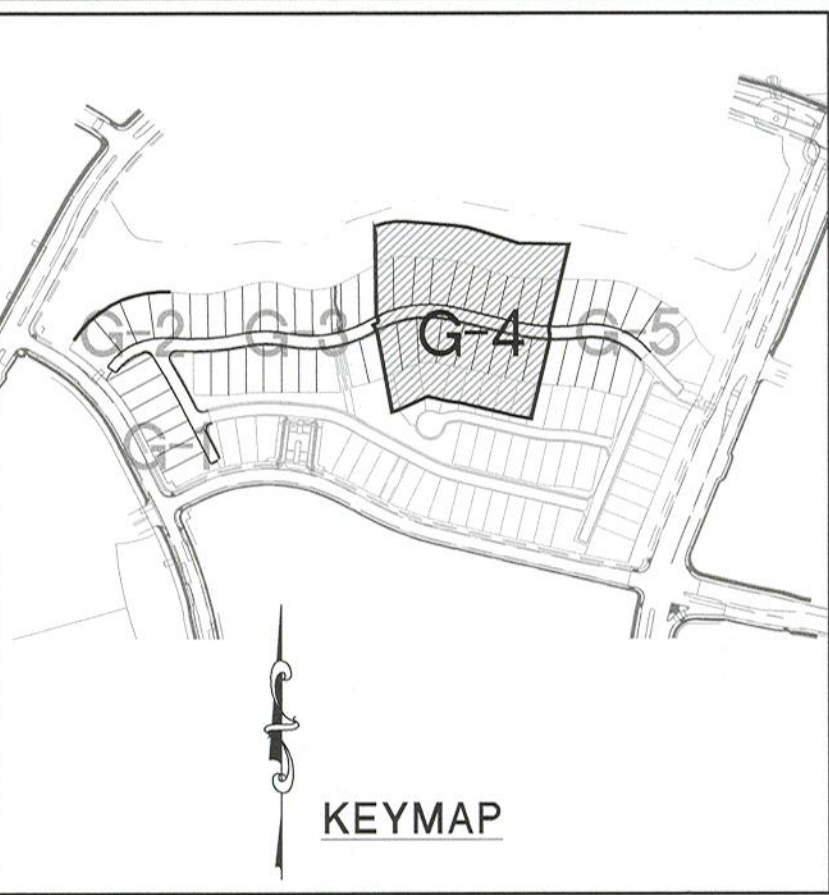
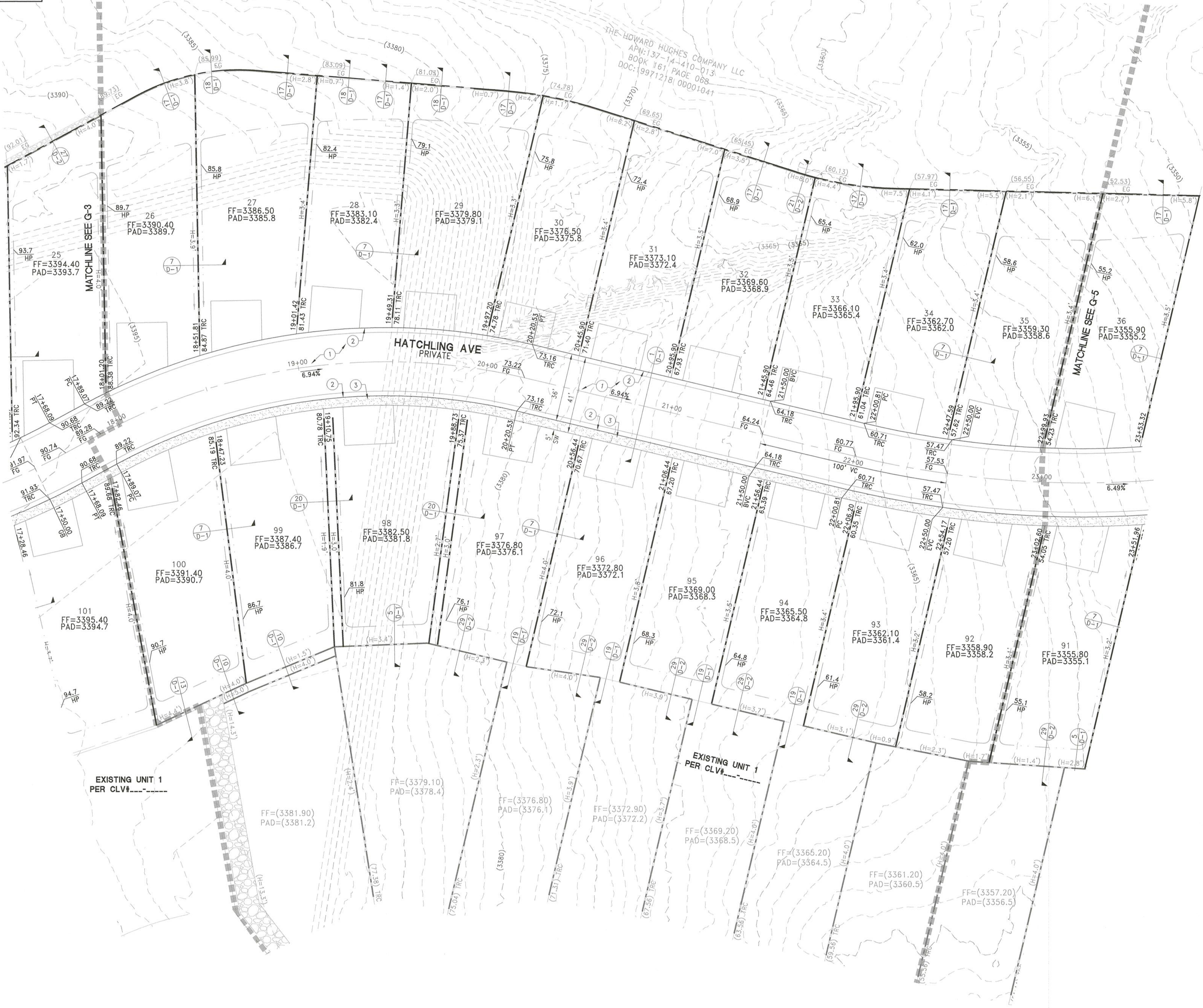
ALL ONSITE STORM DRAINS AND THE
ASSOCIATED FACILITIES ARE PRIVATELY
OWNED AND TO BE PRIVATELY MAINTAINED
BY THE HOA

NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC
SEWER EASEMENTS AND PUBLIC DRAINAGE
EASEMENTS TO BE PRIVATELY MAINTAINED
BY HOA.

SEWER EASEMENT NOTE

NO STRUCTURES AND NO TREES OR VEGETATION TALLER
THAN THREE FEET ALLOWED WITHIN CLV SEWER EASEMENT



- CONSTRUCTION NOTES**
- CONSTRUCT AC PAVEMENT PER DETAILS 1 AND 2 ON SHEET D-1
 - CONSTRUCT "ROLL" TYPE CURB AND GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #S-48
 - CONSTRUCT 5' SIDEWALK PER CCAUSD #234 (5-INCH THICK WHEN CONTIGUOUS TO "ROLL" TYPE CURB)
 - CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD #235 (CASE 1)
 - RIPRAP TO BE REMOVED
 - CONSTRUCT 8" CROSS GUTTER PER SUMMERLIN IMPROVEMENT STD DWG #S-64
 - EXISTING "ROLL" TYPE CURB AND GUTTER TO REMAIN
 - EXISTING PAVEMENT TO REMAIN
 - EXISTING SW TO REMAIN
 - EXISTING PEDESTRIAN ACCESS GATE PER UNIT 1
 - EXISTING WROUGHT IRON FENCE TO REMAIN
 - EXISTING VALLEY GUTTER TO REMAIN
 - EXISTING SIDEWALK RAMP TO REMAIN

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

REV	DESCRIPTION	DATE
BY		
APPD		

REV	DATE	DESCRIPTION
01	October 27, 2020	DATE
02	1"=30'	HORIZ. SCALE
03	N/A	VERT. SCALE
04	DU	DRAWN BY
05	MJD	DESIGNED BY
06	CRZ	CHECKED BY
07	CRZ	APPROVED BY
08	4320.0010	PROJECT #

Woodside Homes®
BETTER BY DESIGN

RCI ENGINEERING
500 SOUTH RANCHO DRIVE, SUITE 17, LAS VEGAS, NV 89106
PH: 702.453.0800 FAX: 702.453.0801
www.rciengineers.com

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 2

GRADING PLAN (SHEET 4 OF 5)

CITY OF LAS VEGAS

NEVADA

10-25-20

G-4

SHT 6 OF 9

10/27/20 9:22pm
C:\4320_Woodside\0010_V22_CD\CIVIL_IPS\UNIT 2\S0003_G-1_SUMMERLIN_V22_CD_U2.dwg czrinyt

CHRISTOPHER R. ZRINYI, PE NO. 13976

DATE

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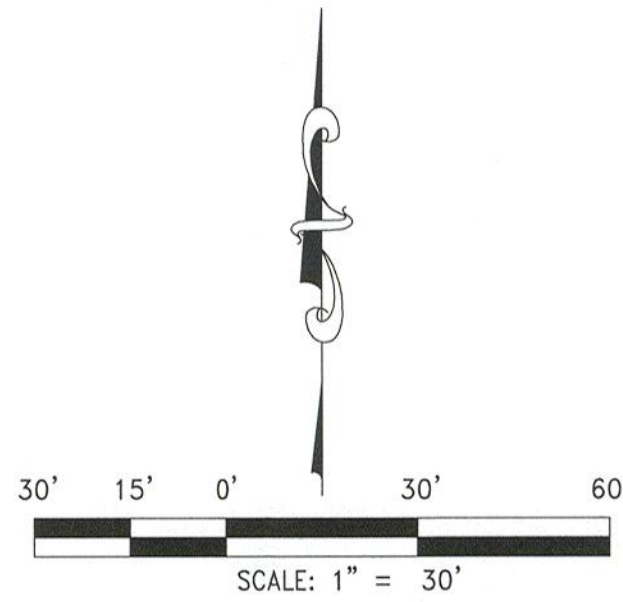
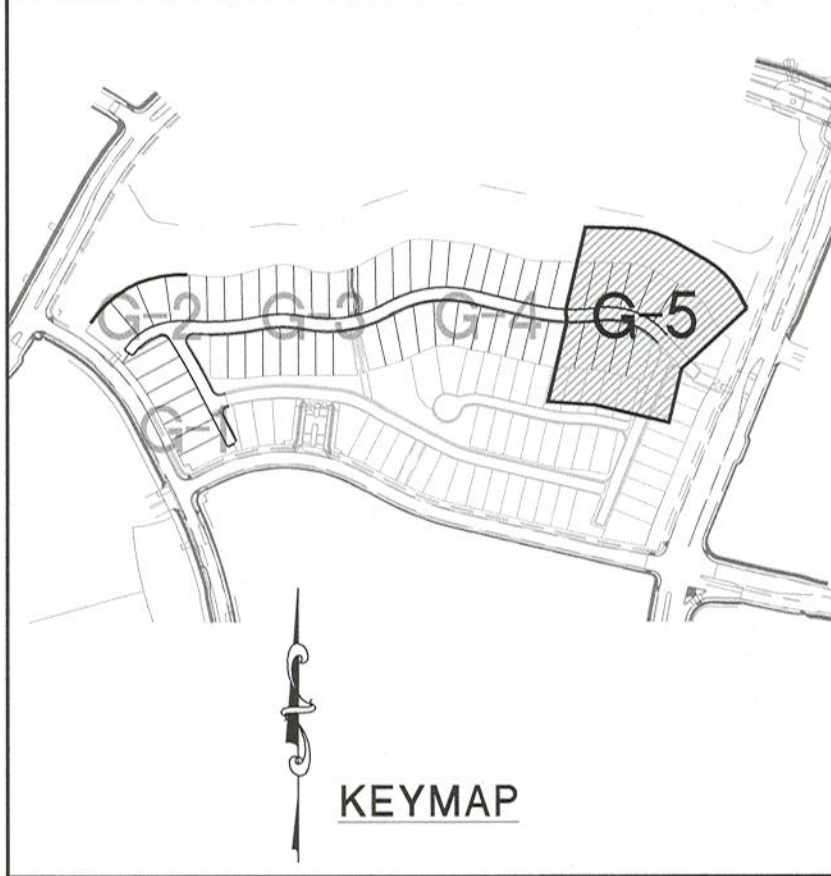
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www.rcieng.com

IMPROVEMENT PLANS
FALCON CREST
SUMMERLIN V22 PARCELS C AND D UNIT 2
GRADING PLAN (SHEET 5 OF 5)

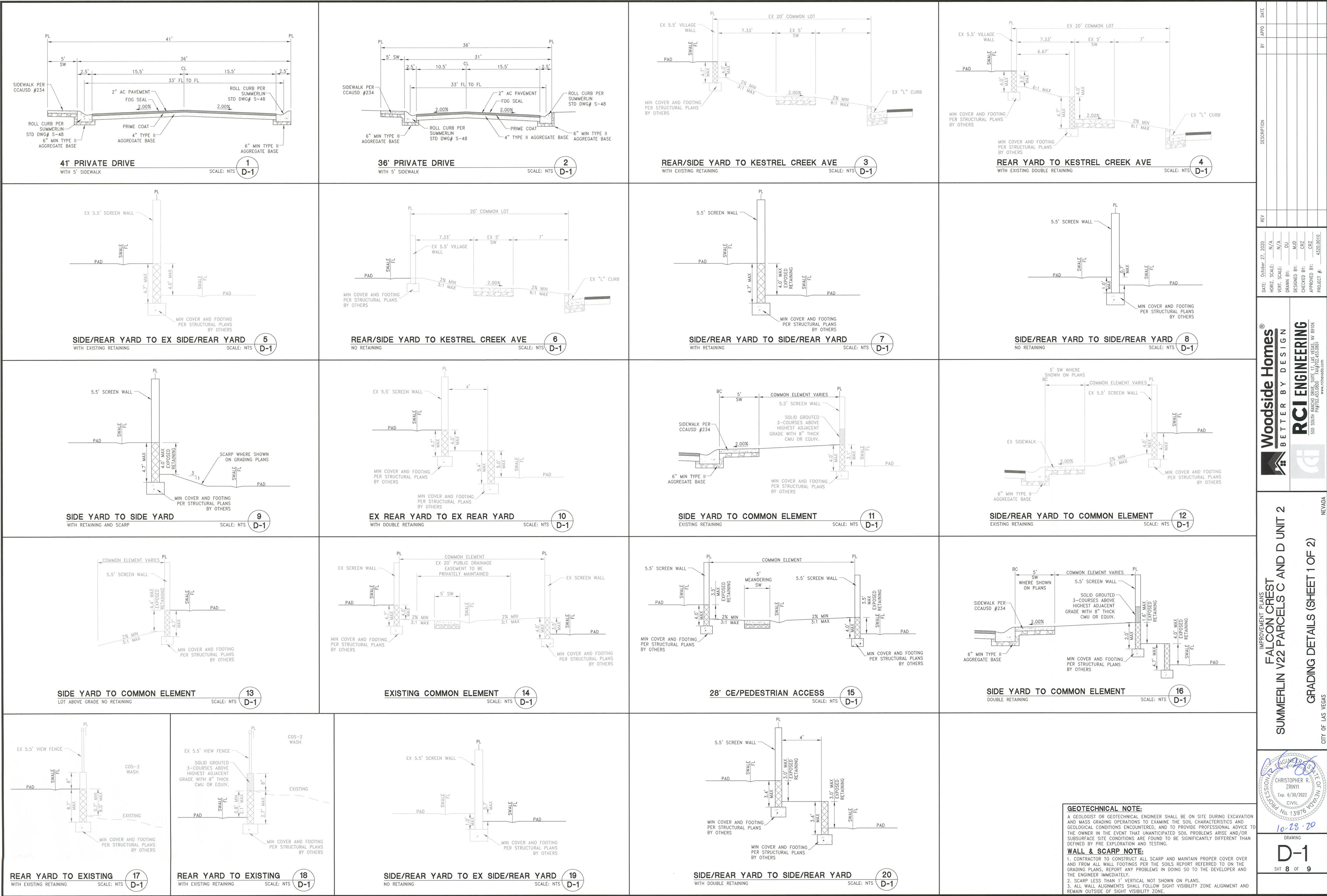


10-18-20

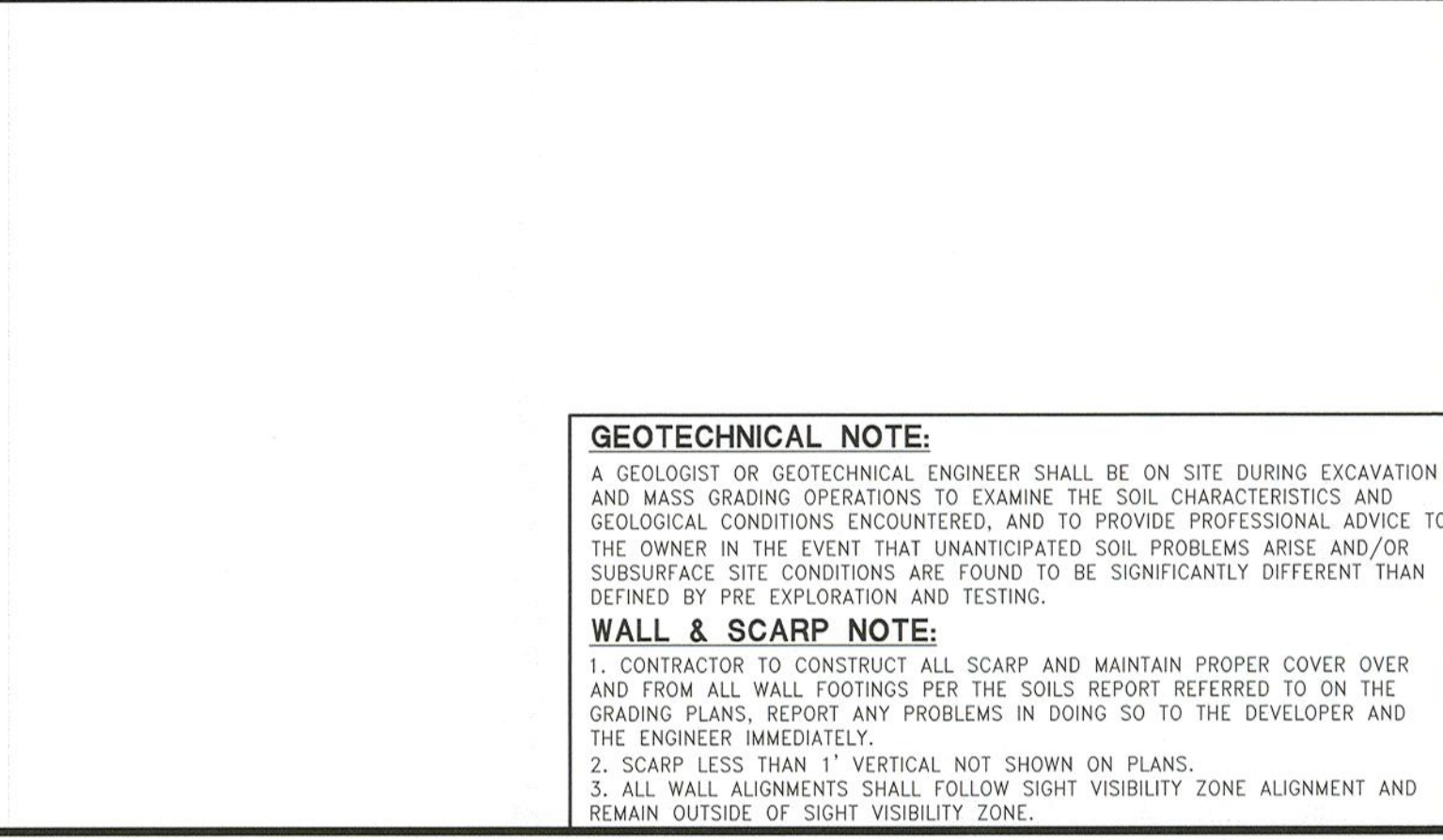
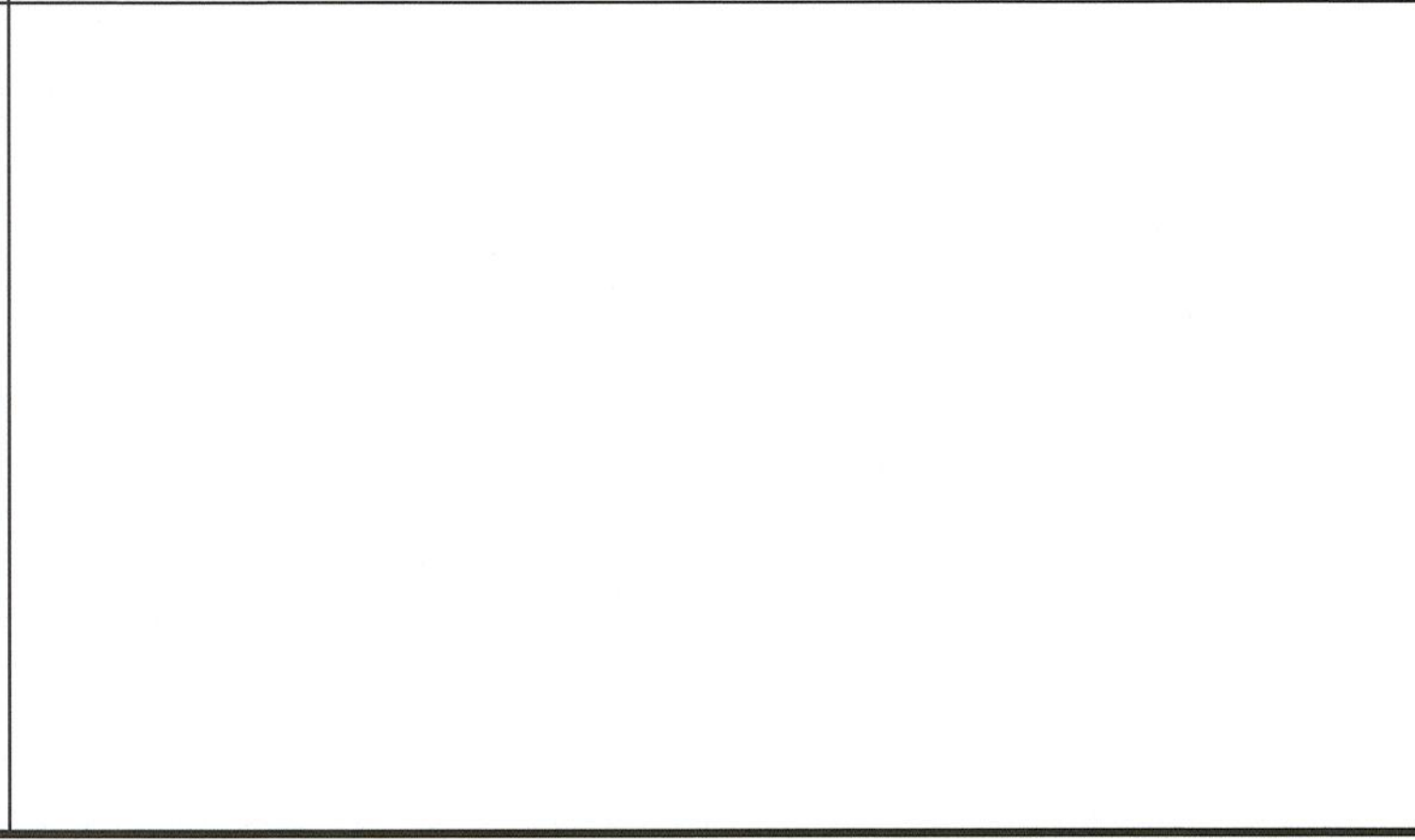
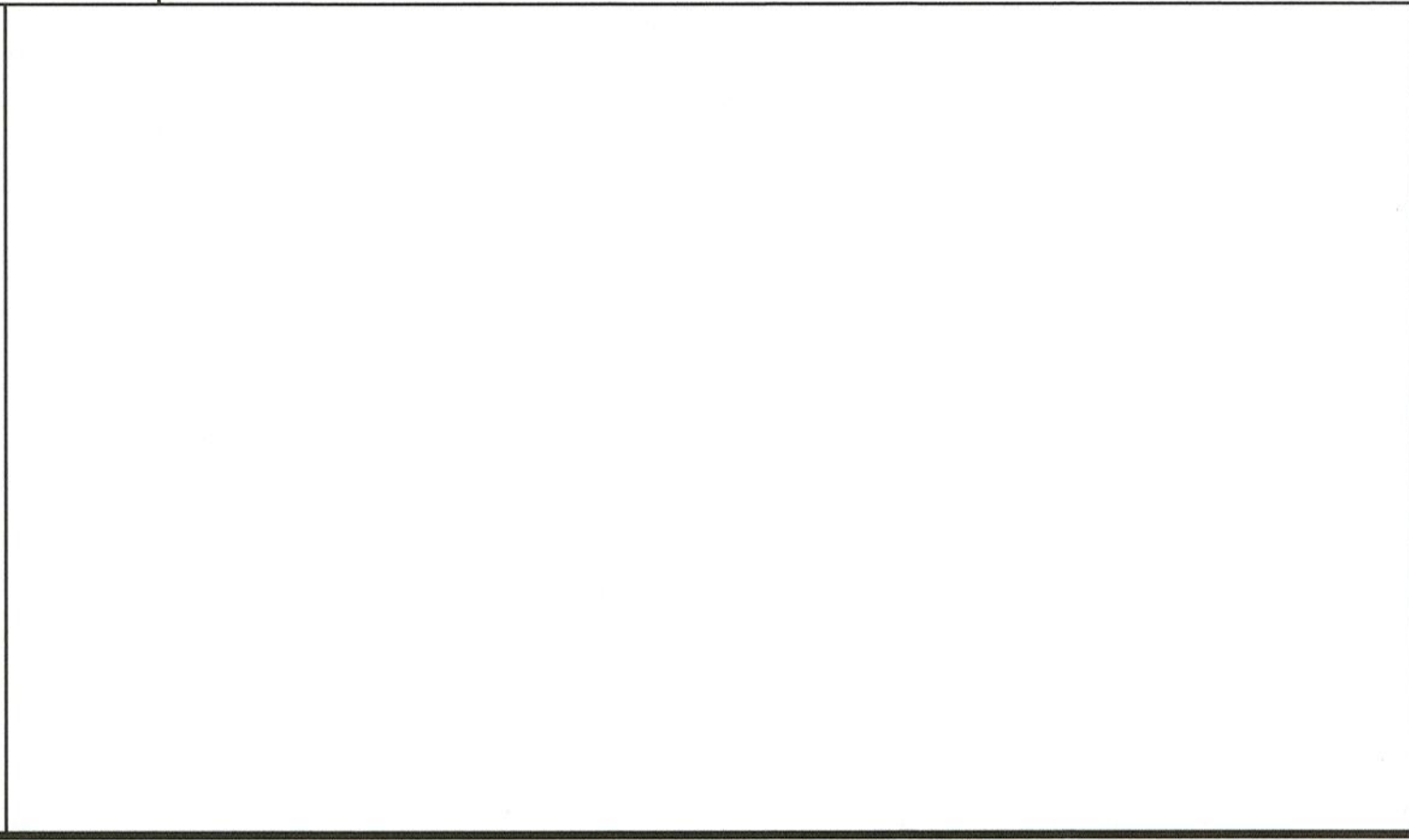
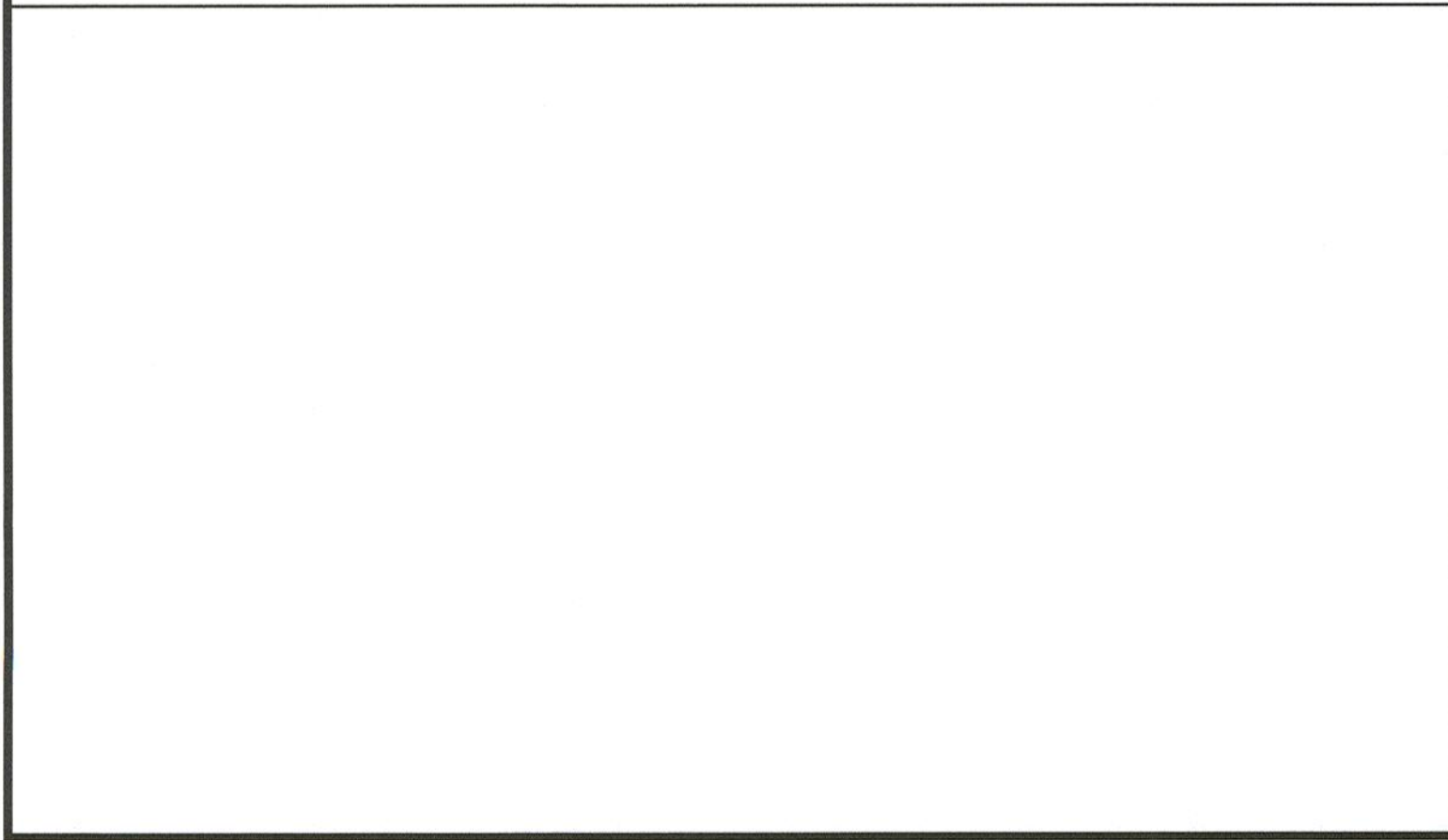
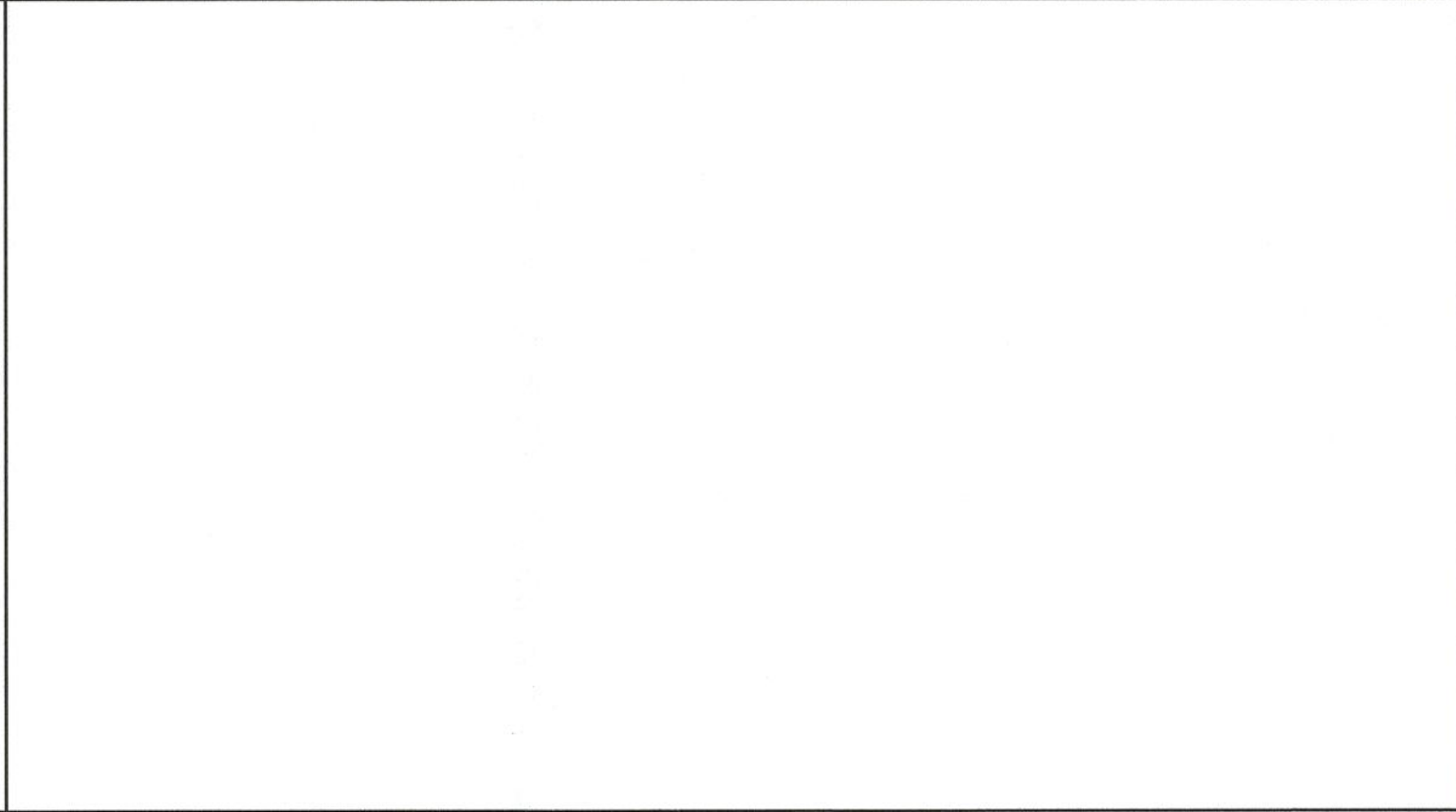
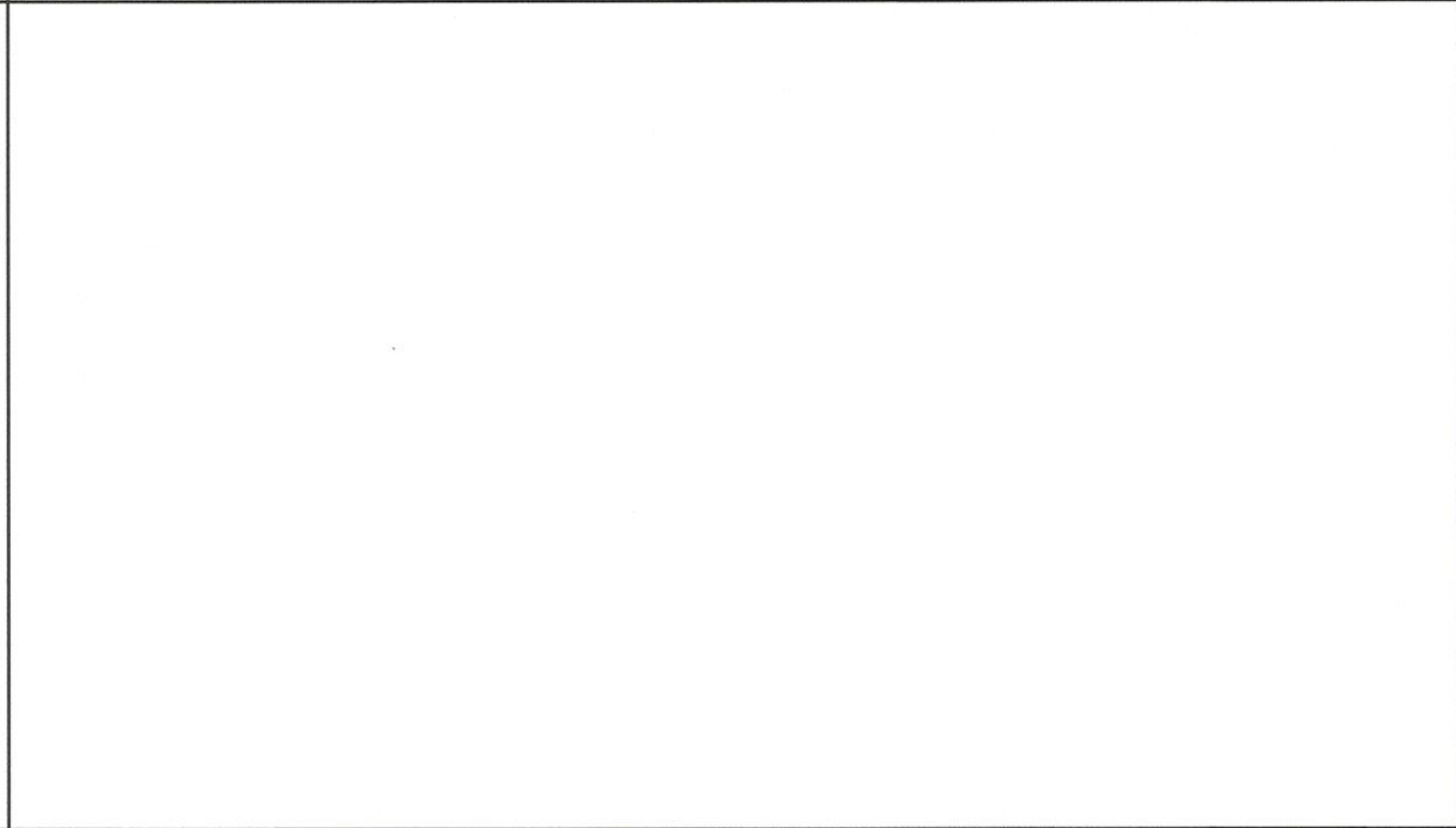
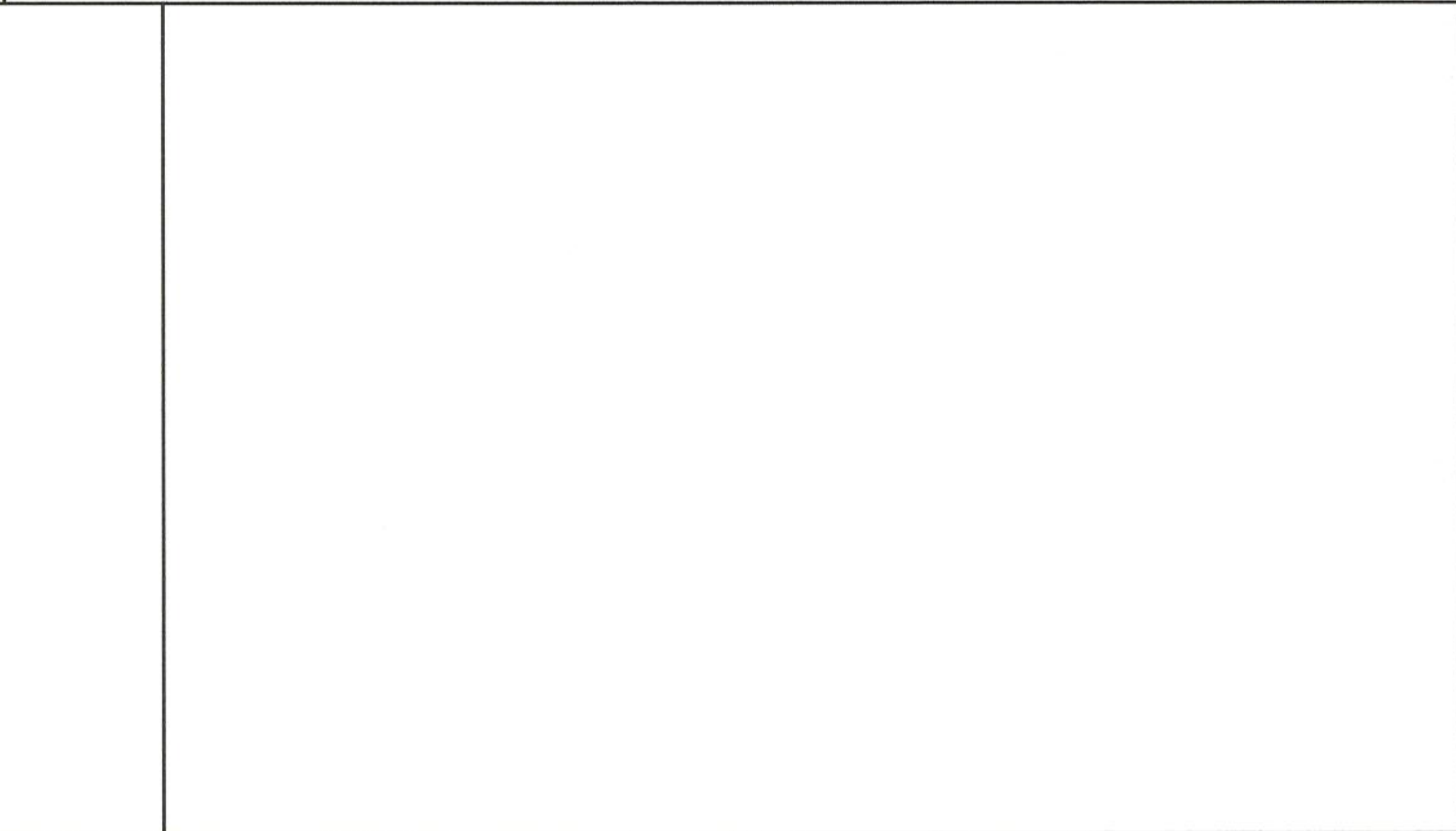
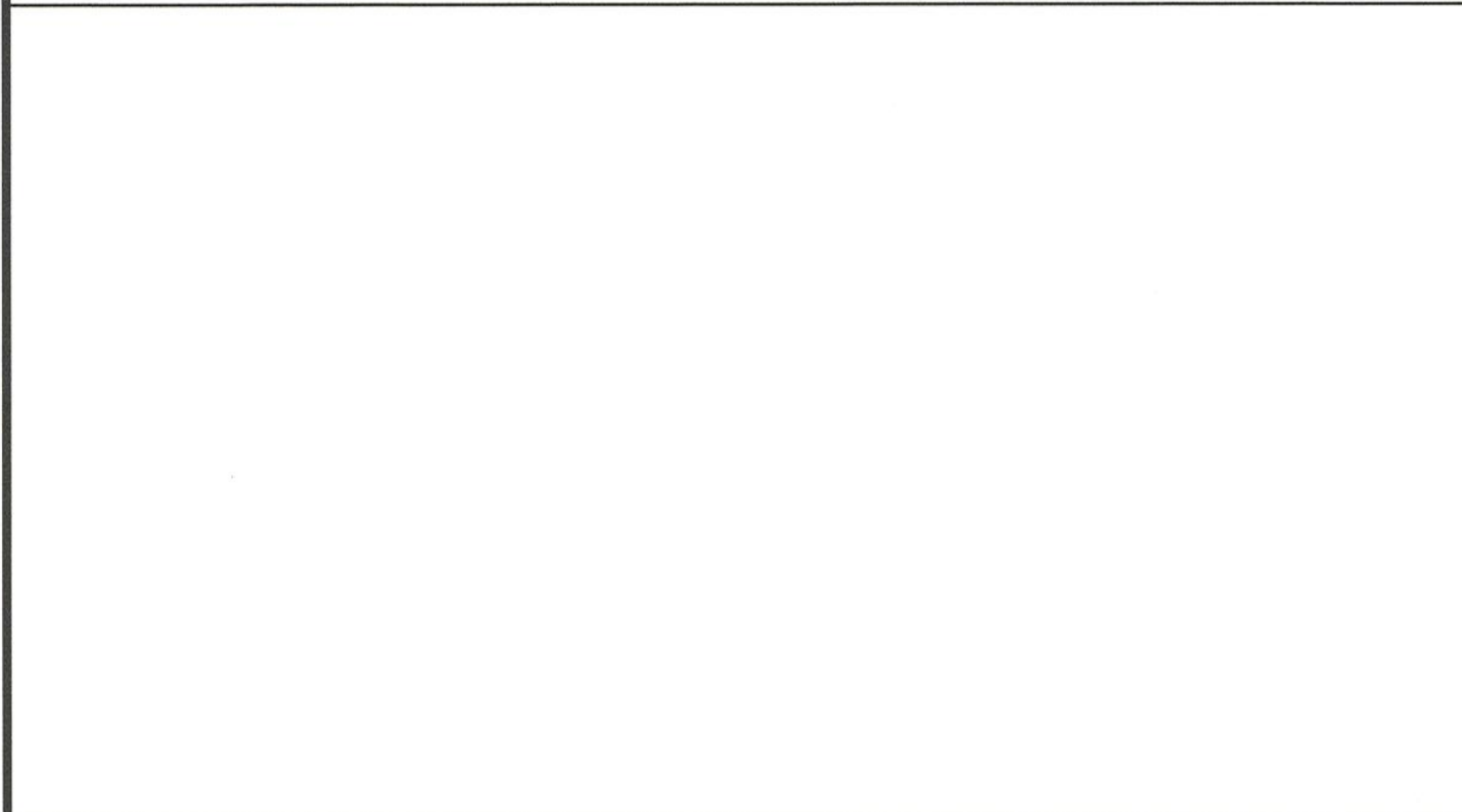
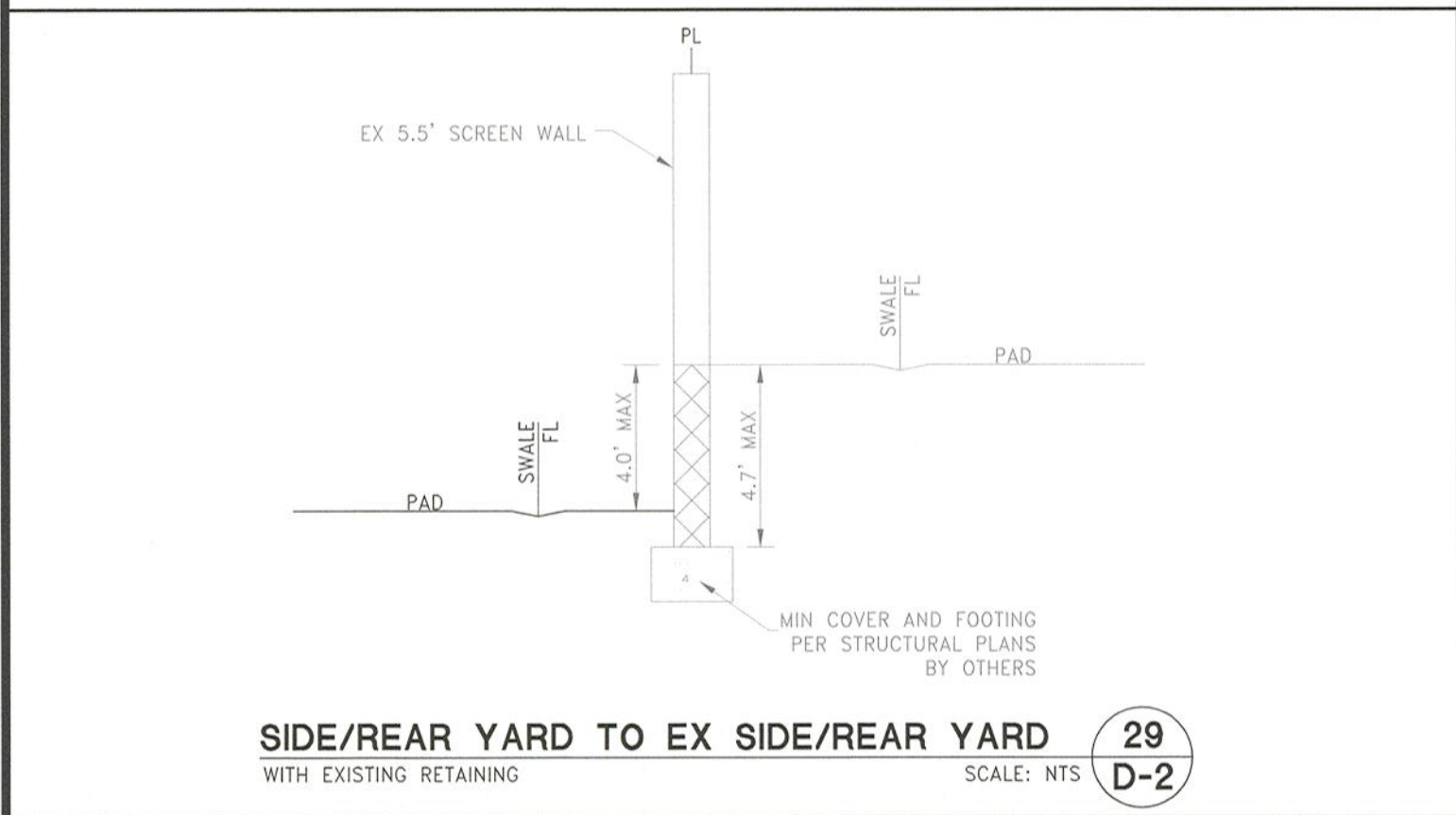
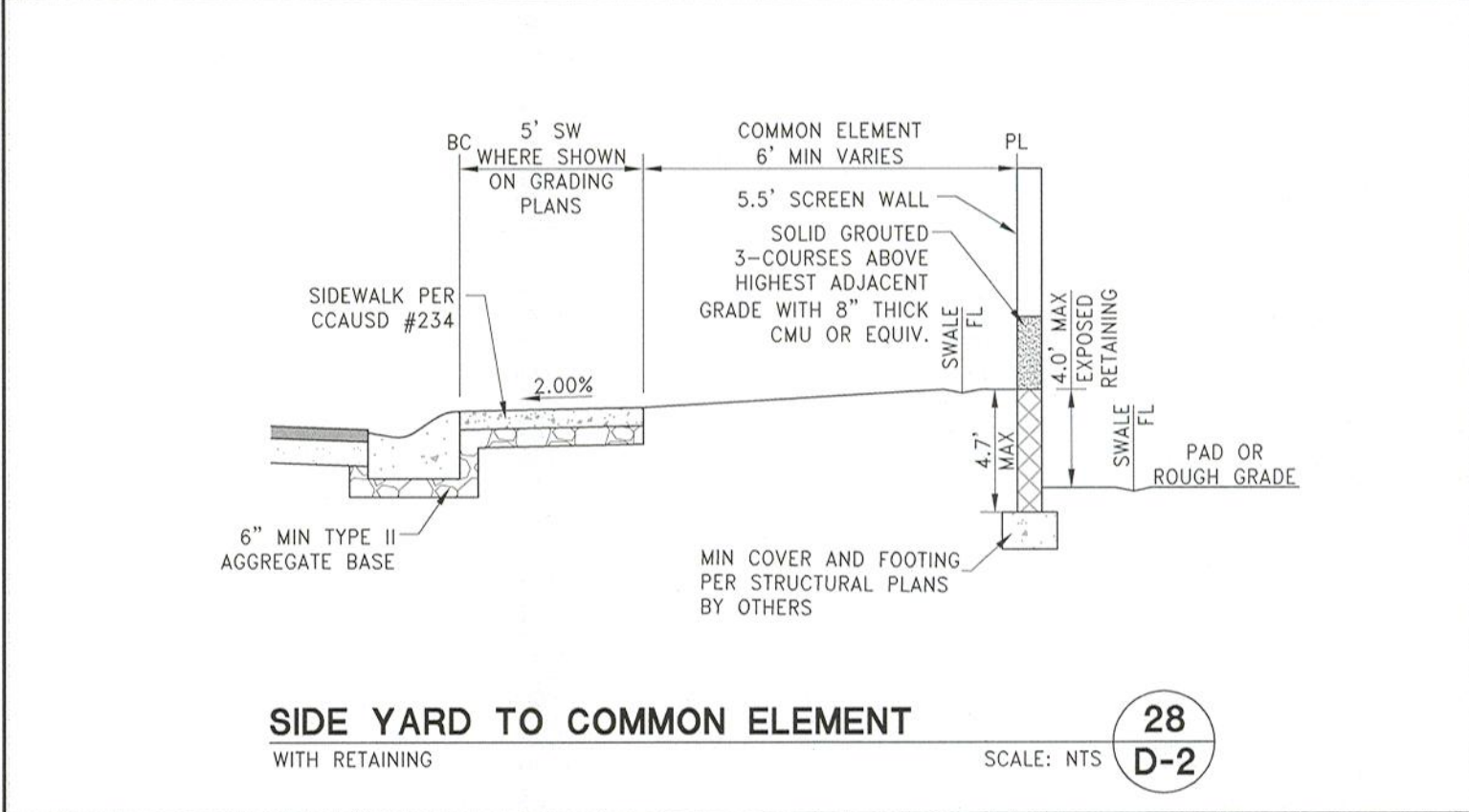
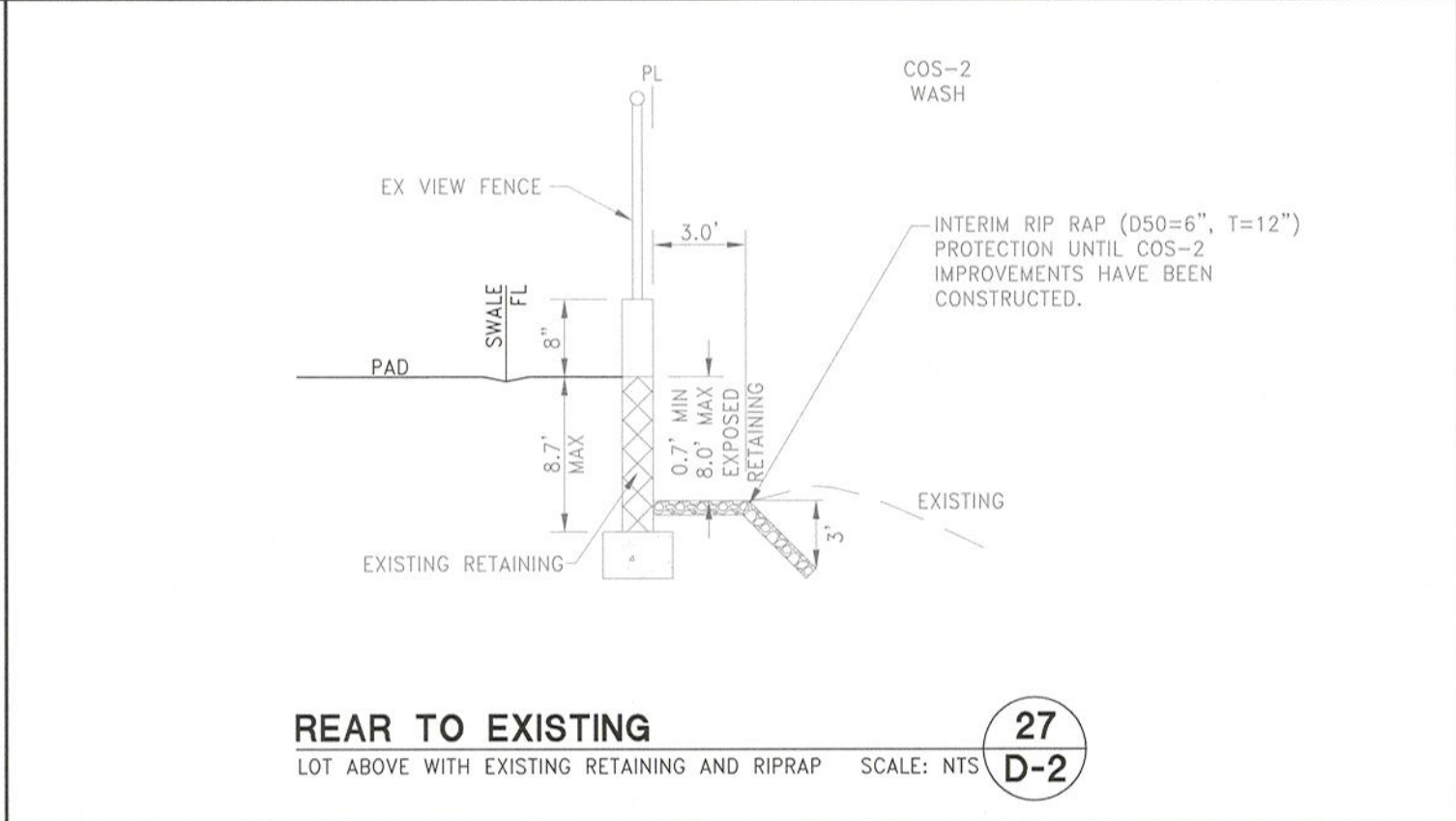
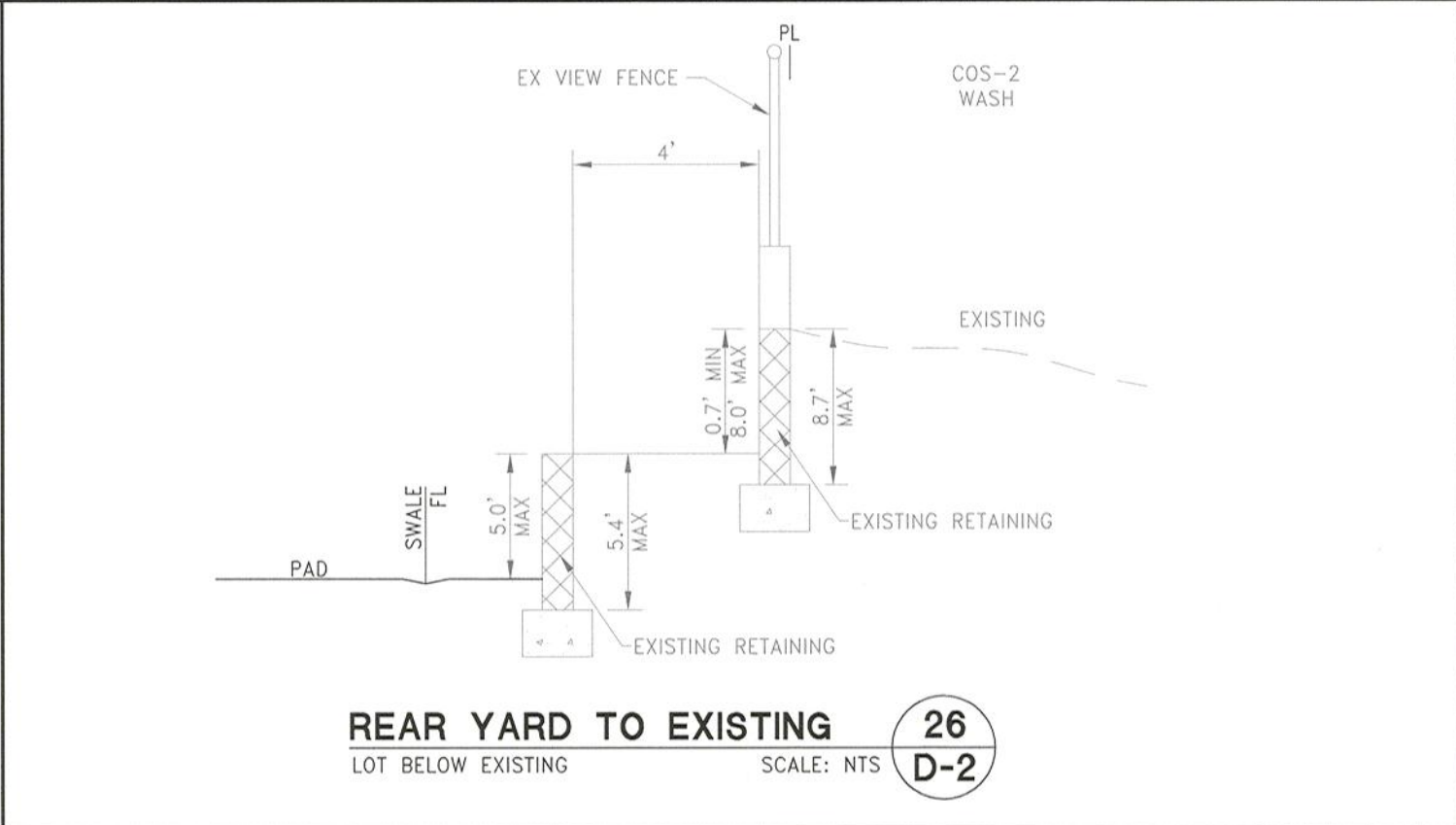
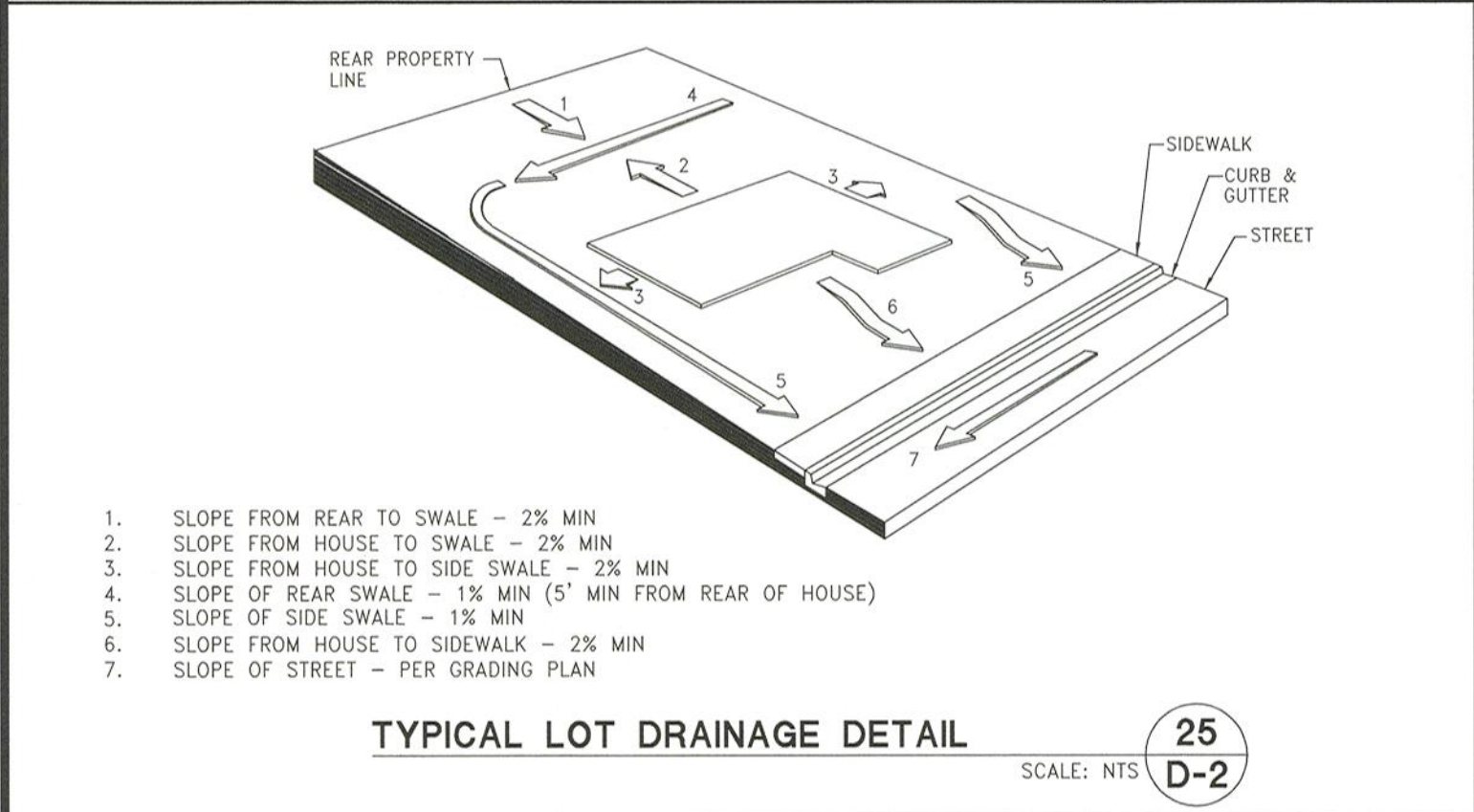
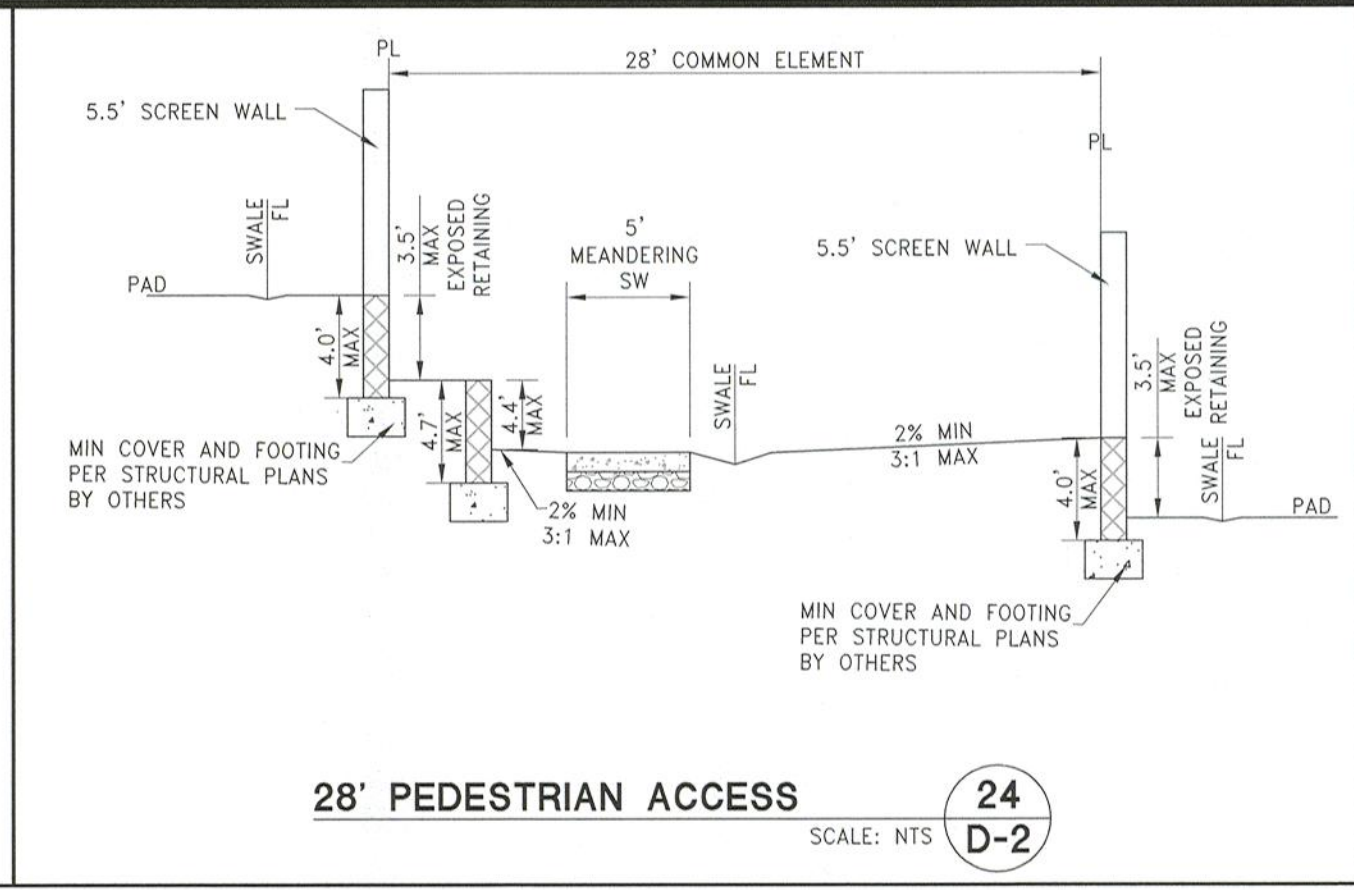
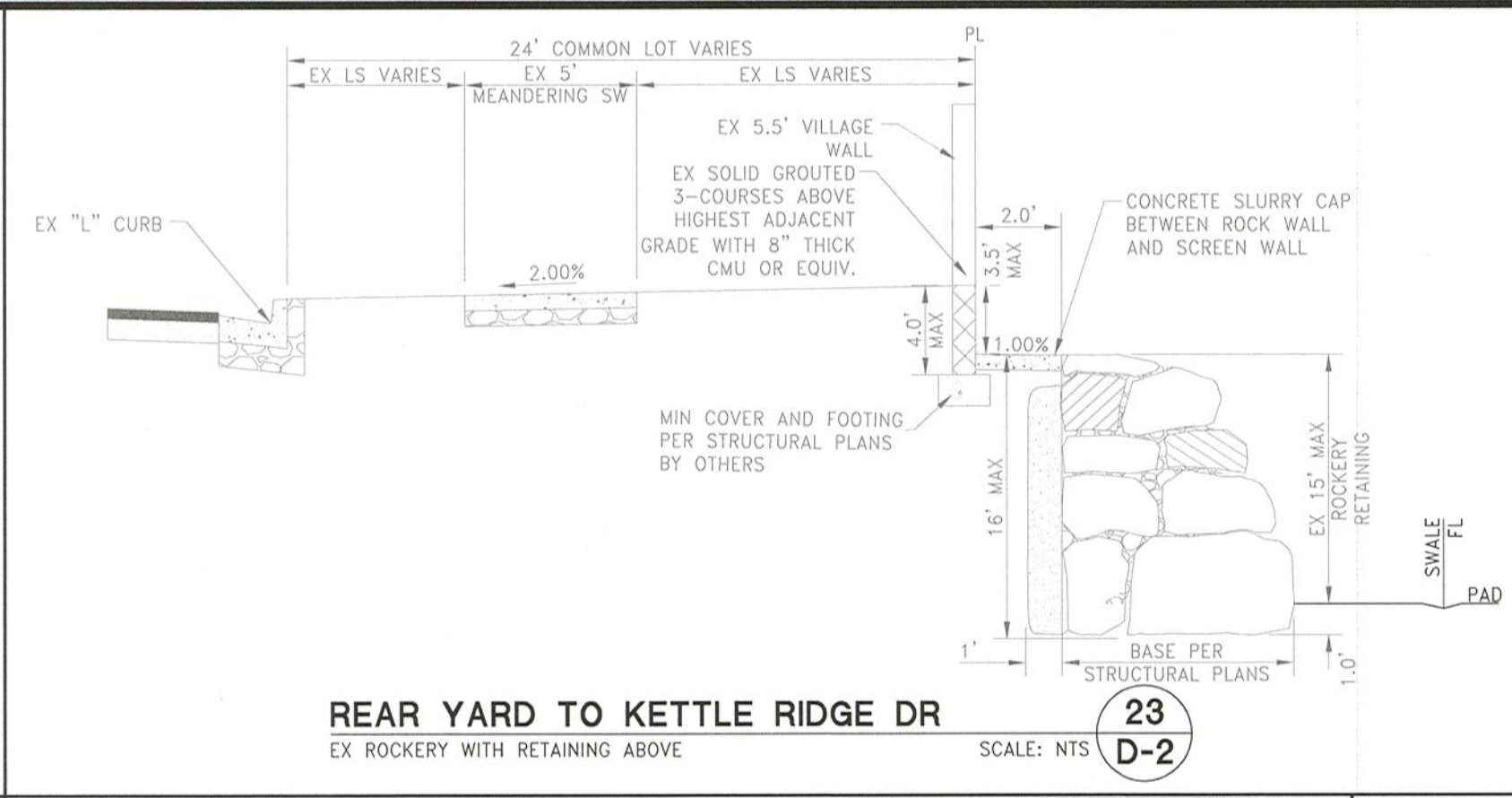
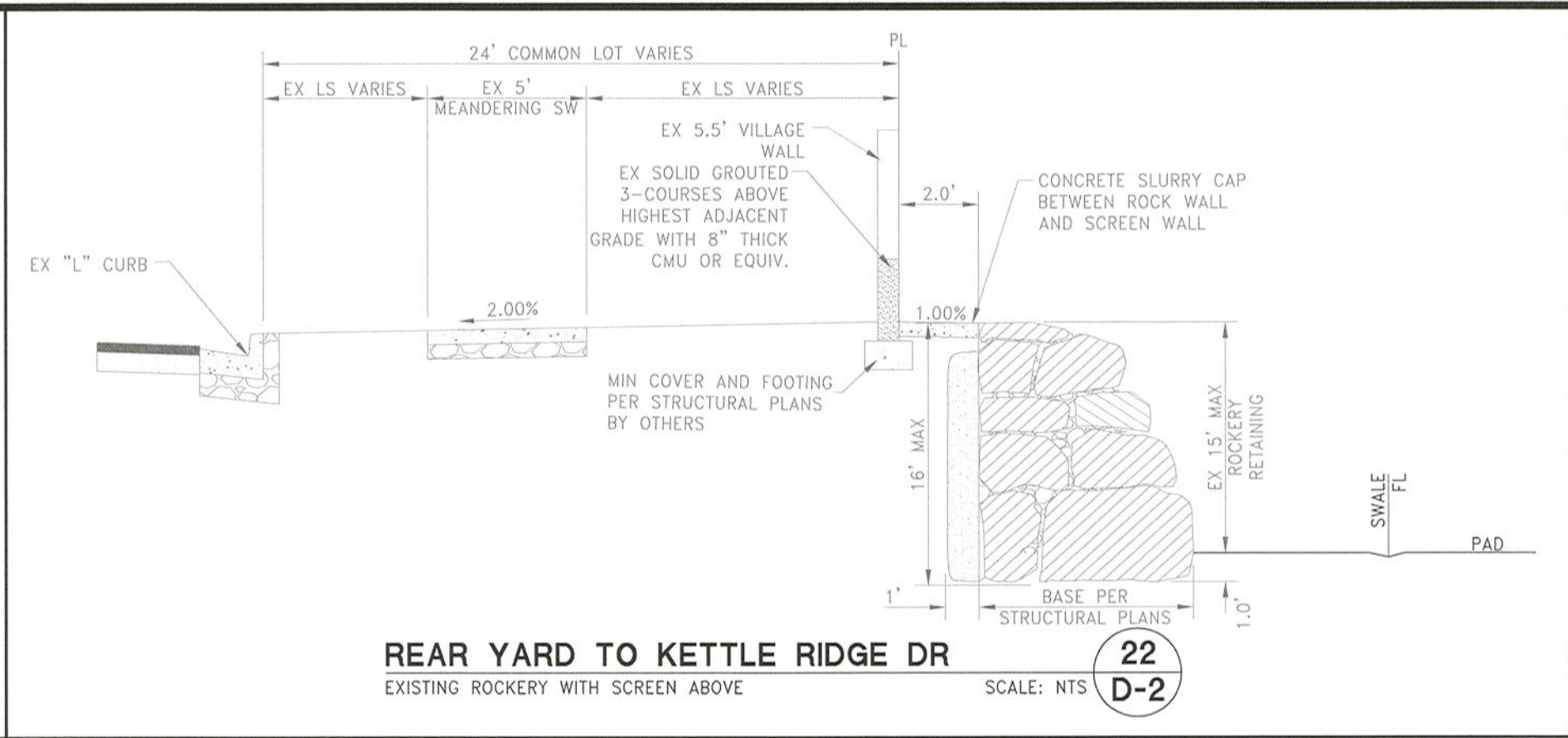
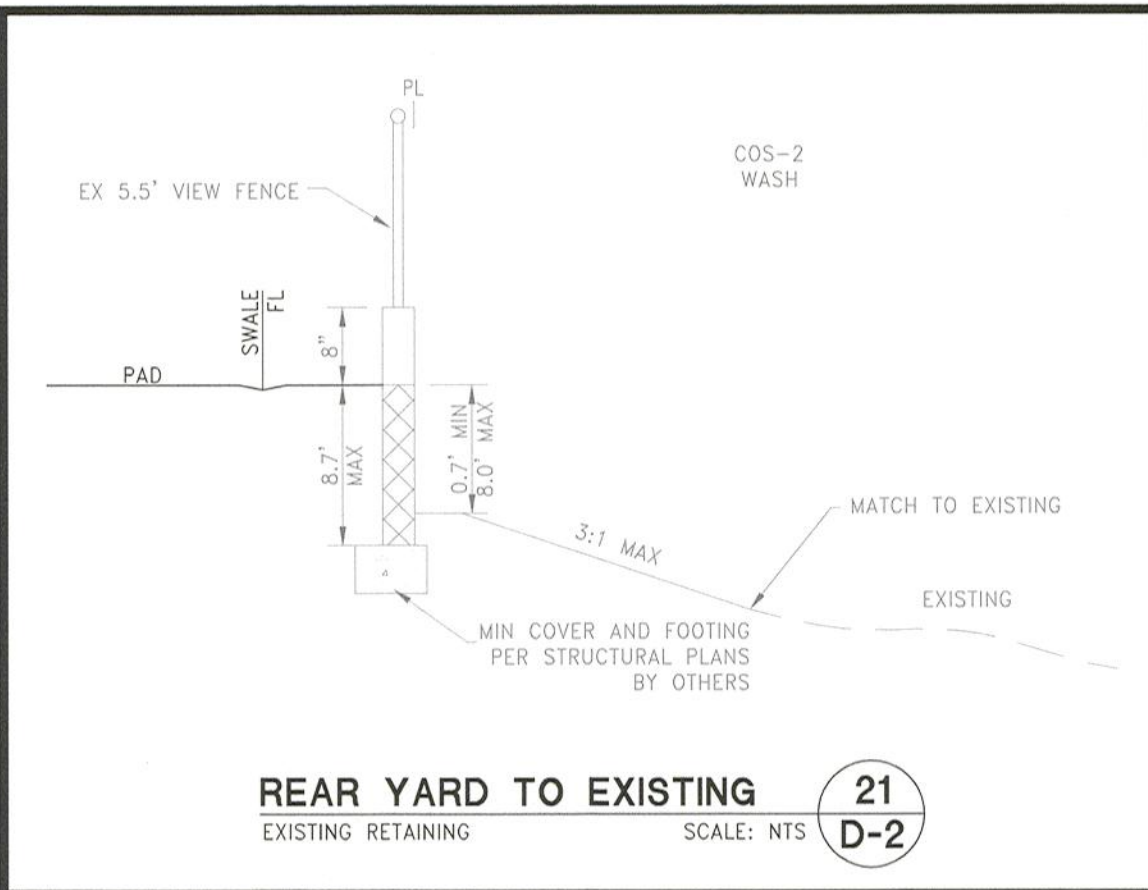
DRAWING
G-5
SHT 7 OF 9

I HEREBY CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED
DRAINAGE STUDY DS #XXXXX ON FILE WITH CITY OF LAS VEGAS FOR THIS PROJECT.

CHRISTOPHER R. ZRINYI, PE NO. 13976 DATE



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DATE: October 27, 2020
HORIZ. SCALE: N/A
VERT. SCALE: N/A
DRAWN BY: DU
DESIGNED BY: MJD
CHECKED BY: CRZ
APPROVED BY: CRZ
PROJECT #: 4320.0010

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GRADING DETAILS (SHEET 2 OF 2)
CITY OF LAS VEGAS
NEVADA

10-28-20
D-2
SHEET 9 OF 9

GEOTECHNICAL NOTE:
A GEOLOGIST OR GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING EXCAVATION AND MASS GRADING OPERATIONS TO EXAMINE THE SOIL CHARACTERISTICS AND GEOLOGICAL CONDITIONS ENCOUNTERED, AND TO PROVIDE PROFESSIONAL ADVICE TO THE OWNER IN THE EVENT THAT UNANTICIPATED SOIL PROBLEMS ARISE AND/OR SUBSURFACE SITE CONDITIONS ARE FOUND TO BE SIGNIFICANTLY DIFFERENT THAN DEFINED BY PRE EXPLORATION AND TESTING.

WALL & SCARP NOTE:
1. CONTRACTOR TO CONSTRUCT ALL SCARP AND MAINTAIN PROPER COVER OVER AND FROM ALL WALL FOOTINGS PER THE SOILS REPORT REFERRED TO ON THE GRADING PLANS, REPORT ANY PROBLEMS IN DOING SO TO THE DEVELOPER AND THE ENGINEER IMMEDIATELY.
2. SCARP LESS THAN 1' VERTICAL NOT SHOWN ON PLANS.
3. ALL WALL ALIGNMENTS SHALL FOLLOW SIGHT VISIBILITY ZONE ALIGNMENT AND REMAIN OUTSIDE OF SIGHT VISIBILITY ZONE.